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ANTEROLATERAL THORACOPLASTY IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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Before going into my subject I wish briefly to submit a few general ideas which the phthisiologists of the School of Forlanini give as causative factors of phthisis. They distinctly draw a line between phthisis and tuberculosis. Tuberculosis may be the most common cause of phthisis but the latter may be also the outcome of other infective processes involving the lung. Phthisis is dependent on the lung's structure and more exactly, on its elasticity which is constantly put to the test by the "dynamical contact between the thorax and the lung". We must take into consideration in dealing with the evolution of phthisis, the function of expansion and retraction of the lung. To bring about phthisis, it is necessary that the pulmonary vesicles be blocked up for some length of time by inflammatory products. This broken respiration is due to the fact that the bronchioles may be temporarily obstructed by plugs of mucus, by the swelling of their walls or conjointly by these two phenomena; in these three instances anatomical conditions bring about bronchial obstruction, but each of these conditions alone may give the same result.

The nature of the pulmonary elastic tissue plays an important part. Respiration and more especially inspiration which raises the tension of elastic tissue, also increases the possibilities of a lesion. The lung may be considered as a layer of elastic tissue spread across the thoracic cavity. Its tension increases with inspiration and decreases with expiration, but never disappears altogether. The inspiratory effort is distributed in equal measure to all the constituting fibres of the tissue which are not injured as a result of disease because they are physiologically able to bear the strain to which they are submitted. Let us consider the case when a gap would occur in that elastic mass.

While the uninjured fibres exerted a centripetal action to bring together the two distant parts, any lesion tends to bring progressively apart the two sides of the wound, and this gap will increase with each inspiratory effort because the elasticity will become more and more compromised. There is a further consequence. While in the intact paranchyma the elastic tension involved equally each fragment of

fibre and simultaneously all the fibres, any lesion breaks the continuity of the effort in its propagation from one fibre to the next. One observes then in an elastic tissue and even more in a tissue which has lost its elasticity as a result of overstrain, a phenomenon analogous to the action of a tailor who attempts in vain to tear an intact fabric but easily succeeds in doing so when a small opening has been made with a single cut of a pair of scissors.

In the first case muscular strength was opposed by the fibres of the cloth acting as a whole; in the second case one is only dealing with isolated fibres (Respiratory Trauma of Morelli)

Whatever the inspiratory effort, phthisis does not occur if the bronchial passages are free. The primary cause of phthisis is the narrowing of the respiratory passages and more particularly of the bronchioles. The narrowing must be permanent and of such a nature as to prevent the entrance of air into the alveoli. It is the respiratory obstruction which provokes the severe traumatism of pulmonary parenchyma. A transient traumatism is not enough to damage the pulmonary tissue. The narrowing alone is not sufficient if the alveoli are not simultane ously obstructed.

Having known that pulmonary elasticity and respiratory traumatism give rise to phthisis, there can be no other treatment but that which eliminates these causes. The introduction of gas in the pleural cavity does not do away only with the elasticity of the lung which may be damaging by itself but it also does away with respiratory traumatism which is no longer supported by the lung but by the surrounding gas. Since it is the elasticity of the lung and the respiratory act which tend to transform pulmonary tuberculosis into phthisis, the artificial pneumothorax which simultaneously does away with these two actions will transform the phthisical into a merely tuberculous lung; the permanent traumatism is thus eliminated, pulmonary tuberculosis will become easily cured. On the conception of this elimination of trauma antero-lateral thoracoplasty is done now in the Carlo Forlanini Institute Rome.

Physiological Basis

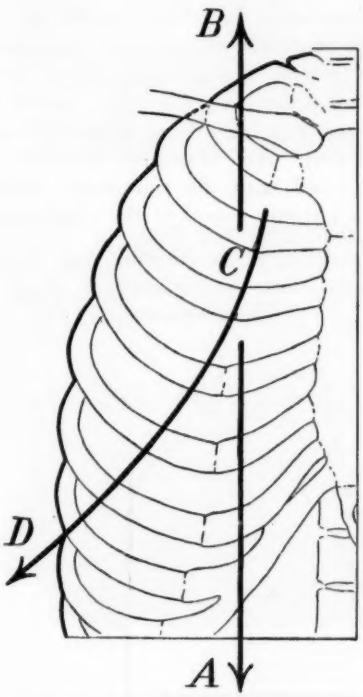
The physiopathological basis of the antero-lateral thoracoplastic operation finds its genesis in the doctrine of the respiratory trauma enunciated by the genius of Forlanini and made up as a system by E. Morelli. According to this doctrine the mechanical factors of the phthisiogenesis are fundamentally tied up to the difference which is existing between the expansive action of the thoracic wall and the retractive force of the lung. Such difference can be made stronger because of the pathological causes which diminish entirely or in part the elasticity of the lung (anatomical stenosis, catarrhal or functional of the respiratory tract) and it is very detrimental when a destructive process exists in the lung. In such cases the drawing force of the wall opposing itself to the tendency of the lung to bring itself in a position of rest will be the cause of permanent traumatism.

Starting from this conception Monaldi of the Carlo Forlanini Institute has made numerous series of studies on normal persons as well as on patients in order to find out the degree and the characteristic action of the thoraco-diaphragmatic wall in its various parts. He has come to the conclusion that there exists zones, which are almost inactive as far as intensity of movements is concerned or in other words their value is secondary. Others have a passive action and finally others have a maximum of activity which constitute the fundamental elements of the thoracic movements. These last zones of maximum activity develop their action following different directions which form together mechanical components. These latter reflect themselves in various ways upon the lung conferring to it a few characteristic directions and degree altogether different in its parts either if we consider the lung in a state of rest or in a state of movement.

Monaldi has called these zones because of their importance and their direction, *Linee Dominanti* (dominant lines). They are four in number: (A) Two verticals; one inferior under the action of the diaphragm, one superior which is regulated by the first rib and the muscles of the superior opening of the thorax, especially the scalenes; (B) the other two are regulated by the movements of the ribs and by the intercostal muscles; of these movements the maximum is developed by a physiobiological cause, on an oblique line which runs from the first costal arch near the parasternal line obliquely downward and lateralward to the seventh rib between the middle and the posterior axillary lines. Two princi-

pal directions result: One sagittal postero-anterior for the superior half and the other transverse dominant for the lateral and inferior half.

FIG. No. I



LINEE DOMINANTI (DOMINANT LINES).

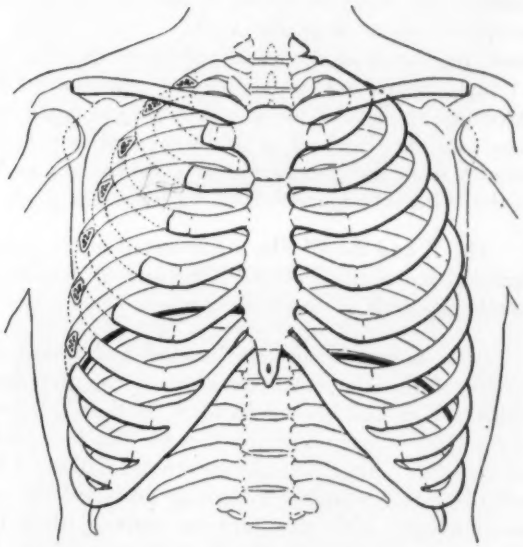
The result is that the respiratory trauma, which depends on the wall, is divided in the parts which compose it (wall) and numerous clinical observations demonstrate clearly the two practical deductions:— (a) In the diffuse lesions, the parts having a maximum activity are most responsible for the mechanical factors of the phthisiogenesis. (b) In the circumscribed lesions the responsible parts are those which govern the respirative activity of the corresponding diseased regions.

On the above mentioned basis Monaldi in 1932 proposed his anterolateral thoracoplastic operation which consists in the elimination of these dominant lines having the maximum thoraco-diaphragmatic movements.

This theoretical conception was later accepted by E. Morelli for his conception about the elasticity of the wall. The first few cases showed that after an initial period of elastic collapse there could follow a reconstruction of the wall which though retracted is still rigid.

Afterwards Morelli proposed the elimination of the periosteum and in some cases increasing the length of the resection of some of the costal arches, to obtain the construction of what he calls, *Velariodi Compenso*, obtaining in this way on the wall the same phenomenon of static, dynamic retraction (depression and paradoxical movements) which we observe on the diaphragm after phrenicectomy *i.e* , Koemboech of the wall (elastic antero-lateral thoracoplasty). The complete operation, which is being performed by Manfredo Ascoli in the Surgical Clinic under the direction of Prof. Alessandri in the Carlo Forlanini Institute, Rome, with a technique that is all his own, consists in the paralysis of the

FIG. No. II



ANTERO-LATERAL THORACOPLASTY (RIGHT SIDE).

diaphragm and the resection of small pieces of the ribs from the first to the seventh, following the oblique line which has, as stated above, the maximum activity.

TECHNIQUE

The phrenic exairesis or in a few cases simple crushing of the phrenic nerve, followed by the

inferior thoracoplasty, is the first part of the operation. This consists of the resection from IV-VII rib, which is done along a line which is almost horizontal going from a point on the midclavicular line over the fourth rib to the posterior axillary line on the seventh rib.

The costal resection is subperiosteal and the ribs are extirpated, taking as a centre the line of incision of the skin, from 8-9 cm. of the IV, 7-8 cm. of the V, 5-6 cm. of the VI, and 4-5 cm. of the VII.

The periosteum is immediately treated with 10% formalin in order to avoid its regeneration. The incision is sutured leaving a drainage tube for 24-48 hours so that the blood and serum may not accumulate inside the wound.

After 8-10 days, the second stage of the operation is done (superior part) which consists in the resection of about 10 cm. of II and III ribs and the complete resection of the I rib. The incision is made beginning at the middle third of the clavicle, ½-1 inch. below and parallel to it; near the medial extremity of the clavicle it makes a right angle and then runs parallel and at a distance of one finger breadth from the parasternal line, downward as far as the third interspace.

The II and the III ribs are resected at the costochondral junction. To resect the first rib Manfredo Ascoli proceeds in the following manner:

After having accurately isolated and raised the border of the clavicular insertion of the pectoralis major, which had been separated, he then proceeds to cut the periosteum of the first rib which is under the clavicle. After the subperiosteal isolation of the first rib, going posteriorly, having dissected the external margin after the superior surface, then the inferior margin, and finally the inferior surface, he proceeds to ablate the rib near the sternum then as much behind as possible towards the spinal column.

The subclavicular vessels and the bronchial plexus are not at all damaged in an operation correctly done as they are covered by the periosteum.

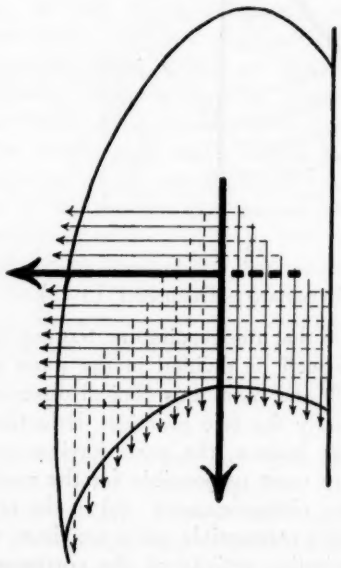
Types

The method of Monaldi must be considered in three different types. First, total antero-lateral thoracoplasty as described above. The other two are:—

Partial thoracoplasty of which one is inferior, and the other is superior. The first one is for lesions along the inferior dominant lines (vertical, inferior and transverse); for these lesions we proceed with a phrenic exairesis and the resection of the IV-VII rib, always along a line which corresponds to the maximum activity. The second one along the superior dominant lines (superior vertical and posto-anterior); the resection of I-III ribs anteriorly completed with the temporary paralysis (crushing of the phrenic nerve) of the diaphragm.

Applying separately the physiological basis of Monaldi's method, his conception concerning the partial antero-lateral thoracoplasty will be easily understood.

Fig. No. III



Combined action of the Vertical, Inferior and Transverse Dominant Lines in the Inferior half of the lung.

Looking at the Fig No.. III where the vertical lines represent the development of the diaphragmatic action, the horizontal ones the costal action, the whole unbroken lines the principal action and the broken lines the secondary action and considering the inferior half of the thorax, it is easily possible

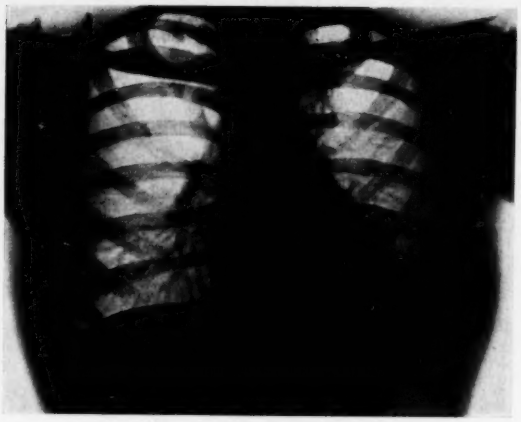


FIG. 6-A

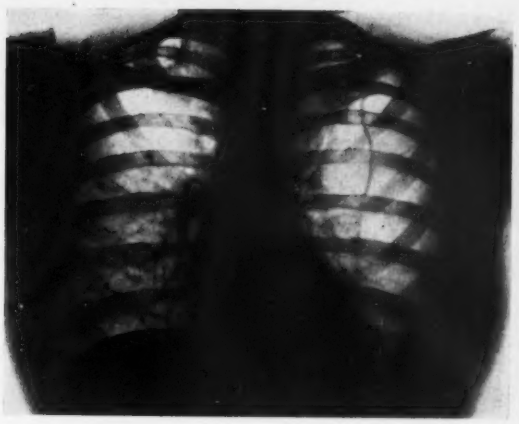


FIG. 6-B

FIG. 6-C

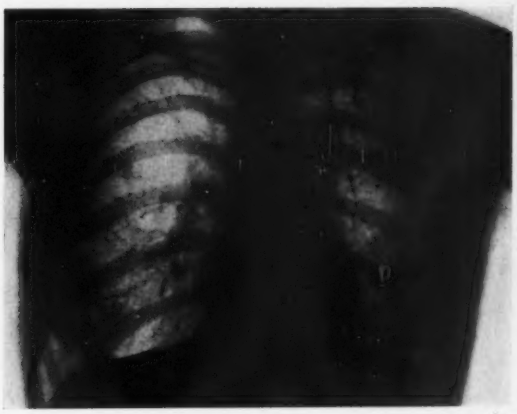


FIG. 7-A

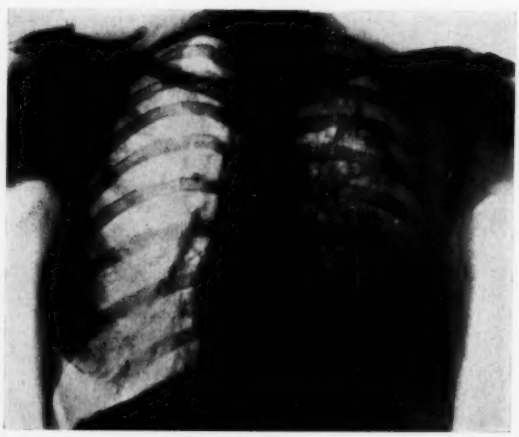


FIG. 7-B

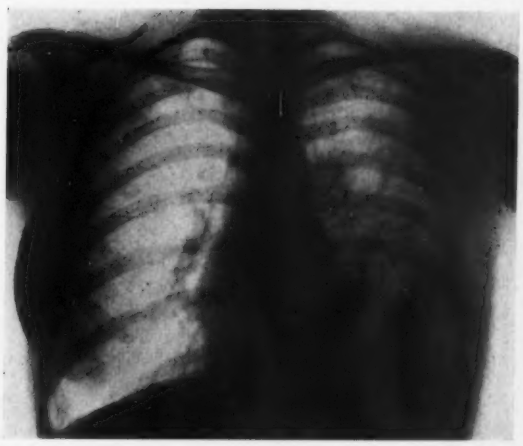


FIG. 7-C

P. D. Fig 6-A : Chronic bilateral tuberculosis with a cavity at the apex. (left) Fig. 6-B : June 1, 1934. Inefficient A. P. Fig 6-C. : Sep. 14, 1934. Two months after the operation of phrenic exairesis and the superior type antero-lateral thoracoplasty (3 ribs removed), sputum negative, cavity healed. S. C. Fig. 7-A. Ulcero-fibrous lesions with multiple cavities in the left lung with pleural adhesion. Fig 7-B : Feb 27, 1934. One month after the operation of the crushing of the phrenic nerve and antero-lateral thoracoplasty (both inferior and superior type), 6 ribs removed, cavernous lesions are reduced in size and modified in their form. Fig. 7-C : Aug 11, 1935. Cavities completely disappeared. Sputum negative since March 1934.

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to reconstruct the mechanical components of the wall.

If the lesions are entirely on the vertical lines, the trauma can be eliminated only by the paralysis of the diaphragm. On the other hand if it is entirely on the transverse lines, only the costal resection will be able to eliminate it. Now, with a similar reasoning., we shall be able to put down the basic theory of the superior type of the antero-lateral thoracoplastic operation.

This method of operation has been applied for the last three years at the Carlo Forlanini Institute. Rome and 280 cases have been operated till the end of June, 1936. The operative trauma is minimum, thermal reaction of no importance, cough, expectoration and velocity of sedimentation first increase but soon afterwards diminish rapidly. The picture of toxaemia, which resembles that following a pneumothorax, disappears in 5-7 days. There is not any functional disturbance of the respiratory or circulatory system. Sometimes, especially in the cases operated on the left hemi-thorax, there may appear gastric disturbances quite similar to those which follow a phrenic exairesis but they immediately disappear if pneumoperitoneum is performed for one or two weeks.

There is no operative mortality. Only one of the last 100 cases died of broncho-pneumonia after four days following the operation.

The condition of the patient after the post-operative period is very satisfactory. The fever even if it is of long duration, comes down to normal, the velocity of sedimentation of red blood corpuscles diminishes, weight increases, diagestive disturbances soon disappear and there is diminution of both cough and expectoration. The quality of expectoration improves and in a few months it becomes negative to Koch's bacillus. If there were haemoptyses, usually they disappear. Here in this Institute several patients were operated who had serious haemoptysis which disappeared soon after the operation.

The most important changes are those concerning the physical findings, in operated cases and especially inspection and auscultation. Inspection:— There is no visible deformity of the thorax except the anterior and lateral retraction which probably somewhat diminishes in course of time by the deposit of fat which generally forms on account of the diminution in the tone of the wall.

The more important finding is the paradoxical respiratory movement (eliminates the respiratory trauma) which is more or less intense and diffuse at the operated regions, so that the immobility is complete in other parts of the lung.

Auscultation gives the striking results; The reduction of the respiratory intensity and sometimes respiratory silence especially on the anterior and lateral side of the hemi-thorax. Rapid diminution of the catarrhal signs even in cases of large cavities with subsequent rapid diminution of expectoration is observed. Slowly after the first period, except in the cases of fibro-thorax, we observe that the respiration returns to almost normal which though of less intensity than the physiological respiration, but more or less of the same clearness.

In some cases, one often hears in the beginning some semi-moist crepitant rales here and there over a large surface of the chest or sometimes limited to certain regions. These rales are caused by the broncho-alveolar atelectasis. Such clinical manifestations can remain for a long time and sometimes they are continued even after the complete healing of the pathological lesions.

The series of x-ray pictures shows us clearly the clinical results of the operation. From these one will find that the lesions, localised or diffuse, having especially an exudative character, are cleared up due to reabsorption of the exudate. The cavities which have a tendency to retract, continue to reduce in size till finally they completely disappear.

In favourable cases a complete cure is obtained in 5-6 months, but in early lesions a complete cure was obtained in 2 or 3 months in the Carlo Forlanini Institute.

In the first 100 cases (patients without any particular selection) about 70% were completely cured and in about 10%, there is no complete cure but improvement of the general condition; diminution of expectoration, of cavities, disappearance of haemoptysis, and transformation of acute into chronic condition.

In a few operated cases because of the appearance of contralateral lesions a therapeutic pneumothorax was done which was tolerated very well.

CASES

I. P. Pietro, male, aged 46 years:

The first clinical symptoms of tuberculosis appeared in April, 1925. After a sanatorial cure of 5 months he returned to his occupation. Returned again to the Carlo Forlanini Institute in August, 1934 with the following diagnosis:—extensive ulcero-cavernous lesions right lung with a big infraclavicular cavity and bronchopneumonic diffusion with a liquefying tendency in the inferior half.

February 18, 1935. Phrenic exairesis and antero-lateral thoracoplasty with resection of the ribs from IV-VII (respective length 9 cm., 8 cm., 6 cm. and 5 cm.). Local Novocain anaesthesia. Post-operative course uneventful.

March 4, 1935. Second stage of the antero-lateral thoracoplasty with resection of the first three ribs. Local anaesthesia. (respective lengths of the ribs, total, 11 cm., 10 cm.). Post-operative course uneventful. Fair recovery. Rapid disintoxication.

The lesions in inferior half underwent a gradual resolution and the cavity became smaller and smaller till finally it healed in October, 1935.

The sputum became negative at the end of August, 1935 and remained so till he was discharged from the sanatorium.

On November 16, 1935. The patient was discharged from the sanatorium clinically cured.

II. F. Giovanna, female, aged 24 years:

Onset of the disease April, 1934 with cough, blood-tinged sputum, and then haemoptysis in August and October. Admitted in Terni Hospital, where therapeutic pneumothorax was administered on the right side which was abandoned after the fifth introduction as it was clinically inefficient.

On December 9, 1934. Admitted to the Benito Mussolini Institute with the following diagnosis:—pulmonary tuberculosis of the right lung with a central isolated cavity with the aftermaths of a pleurisy.

January 28, 1935. The patient underwent the operation of phrenic exairesis and antero-lateral thoracoplasty with resection of the ribs from IV-VI. Post-operative course normal. After a month the cavity is greatly reduced in size and the sputum is negative.

X-ray picture of April 5, 1935. The cavity has entirely disappeared.

In April, 1935, patient was discharged from the Institute as clinically cured.

III. P Domenica, female, aged 24 years.

Onset of the disease in September, 1933 with general and respiratory disturbances. In November 1933, she was admitted to the Ospedale Littorio, Rome, where she was treated with artificial pneumothorax on the left side which was abandoned after a few introductions, as it was clinically inefficient.

In April, 1934, entered the Benito Mussolini Institute with the following diagnosis:—

Chronic bilateral apical tuberculosis with a solitary cavity at the left apex.

On the 20th of the same month artificial pneumothorax was done again. As it was only partial and clinically inefficient, so it was abandoned.

On July 16, a left phrenic exairesis and the superior part of the antero-lateral thoracoplasty with resection of the ribs I-III (5-10 cm.) was performed. Local novocain anaesthesia. The post-operative course was complicated with gastric disturbances which were rapidly eliminated by pneumoperitoneum done on the 29th of the same month.

The general condition rapidly improved. The temperature which was always irregular became normal after 12 days. The body weight which diminished from 57·7 Kg. to 56 Kg. after the operation, increased rapidly again to 63 Kg. after the third month of the operation. The expectoration from 15-20 gm. daily before the operation diminished rapidly so as to pass to minimum quantities after only 15 days of the operation. After one month sputum became Koch negative and remained such all the time the patient was under observation. The objective examination showed gradual regression of

the pathological factors till finally complete disappearance only after two months. On the operated part only normal respiratory breathing was heard, a little attenuated.

Roentgenogram showed at first gradual reduction in size of the cavity and the total disappearance only after 40 days.

The patient was discharged in April, 1935 as clinically cured.

IV. S. M. Carmela, female, aged 26 years.

In November, 1930, the patient suffered from exudative pleurisy on the left side. This was cured only to return with the signs of pulmonary lesions in December, 1932. In October, 1933, the patient was admitted in the Lecce Sanatorium where artificial pneumothorax was tried but could not be done on account of adhesions, hence transferred to the Benito Mussolini Institute, Rome, on the 4th January, 1934 with the following diagnosis:—

Ulcero-fibrous lesions with multiple cavities of the left lung with pleural adhesions.

January 15, 1934. Crushing of the phrenic nerve and antero-lateral thoracoplasty (inferior type) with resection of the ribs from III-IV (8 cm.-5 cm.) was done. On the 24th of the same month superior antero-lateral thoracoplasty with resection of the ribs I and II (6-10 cm.) was done. Local novocain anaesthesia.

Roentgenogram on the 16th March, 1934 (after 59 days of the operation), showed that the cavitations were considerably reduced and also modified in their form. Roentgenogram of the 5th June, 1934—the cavernous lesions have entirely disappeared. Of these there remain only small indistinct and irregular traces. Physical examination reveals no signs of cavity.

The expectoration which was between 130-140 gm. daily before the operation, increased during the interval between the I and the II stage of the operation and immediately after the second stage; however in the second week after the second operation it became 8-10 gm. daily, in the second month from 2-5 gm, in the third month almost completely disappeared with Koch negative.

The temperature which was before the operation, irregular and febrile came down to normal during the period of observation. The weight went up from 45 Kg. to 60 Kg. during the first six montths.

In April, 1935 the patient was discharged from the Carlo Forlanini Institute as clinically cured.

The author wishes to express his very great appreciation and indebtedness to Honorable Prof. E. Morelli, the Director of the Institute Carlo Forlanini and Prof. V. Monaldi, Primario of that Institute, for permission to have observed and studied the clinical cases and to thank Dr. P. Guglielmetti and Dr. M. A. Sisti of that Institute for their courtesy and co-operation in the preparation of this paper.

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CLINICAL INDICATIONS OF ANTERO-LATERAL THORACOPLASTY

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Carlo Forlanini Institute, Rome (Italy).

It is only a comparatively few years ago that the surgical treatment of pulmonary tuberculosis was still regarded as wholly impracticable except by a very few farsighted enthusiasts. Since then such enormous advances have been made that it is only a very small minority that refuses to recognise them. It is right to be critical of every operation and of every detail in technique; but it is wrong to condemn without its fullest trial. Admittedly the posterior paravertebral thoracoplasties are more drastic and the immediate risks are greater. But this anaterolateral thoracoplasty, which is based on the same principles that govern an artificial pneumothorax and yields practically the same results, is a procedure of wide practical application with practically no deformity and no operative mortality.

The observations, done since 1932 on 280 cases operated upon for antero-lateral thoracoplasty in the Benito Mussolini Institute and in the Carlo Forlanini Institute directed by Honorable Prof. E. Morelli, have induced Monaldi to specify the principal clinical indications of this operation. These indications are based upon the logical conclusions of previous investigations both experimental and clinical, upon the pathological physiology, respiratory trauma, chemistry and mechanics of phthisis. I take from a very recent publication such indications and they are the following:—

I. According to Monaldi the first indication is given by recent forms having a predominant exudative character passing to caseation, softening and liquefaction. Such cases are; Percox infiltration

having a tendency to ulceration; circumscribed infiltrations; lobar form of exudative phthisis; the confluent micronodular form; and the broncho-pneumonic caseous tuberculosis in an initial stage. Here is disease still in its first phase, but already in a stage in which it is well indicated radiologically, bacteriologically and by clinical signs—a phthisiogenic evolution.

Already in the first few weeks after the operation there is a complete disintoxication of the patient which is indicated by the fall of temperature to normal, by the improvement of blood composition, by a return to physiological values of the sedimentation velocity of the erythrocytes, with the increase of the body weight and with a return to normal general conditions. At the same time the local conditions are also on their way of healing. The expectoration, which increases after the operation, soon afterwards diminishes, till finally it disappears completely and becomes Koch negative. The respiration returns gradually to its physiological character; but as far as quantity is concerned it is somewhat reduced. The pathological factors gradually disappear.

Radiologically there is a great clearing of the infiltrated lesions so that after the complete cure there is hardly any difference of luminosity between the two ports (the lesion and the normal parenchyma) except that in the same zones there remain small intensely opaque, isolated or grouped, circumscribed nodules which are due to cirrhotic thickening or calcification.

In this group, unsuccessful cases are almost exclusively limited in those patients who are very much impoverished, with diffuse broncho-pneumonic lesions and a rapid course, and to those forms which for reasons that are prevalently biological, have a tendency to become worse by spreading in the other lung or by means of lymphohaematogenic dissemination.

II. The second indication given by Monaldi is: All the forms of the first group which have passed to a very evident state of phthisis by the formation of recent cavities.

These forms may be associated with those of the first group because they are the immediate derivatives of those or they may be with the physiognomy of isolated recent cavities like those deriving from a precox infiltration in which the perifocal reaction has regressed or like those coming from haematogenous forms which became inactive in the areas where the nodes have remained isolated while they have passed to the state of excavation in the confluent areas.

The process of recovery proceeds in the manner as stated above about the first group, as far as the disappearance of exudation is concerned. The operation arrests further progress of the cavities and renders the retraction possible.

The possible failures are in some casts due to general factors and in others due to local conditions. For the general factors one must not forget that the carriers of recent ulcerative lesions, especially diffuse ones, can be in that allergic state in which it is still easy to have the dissemination and bilateralization analogous to what has been said concerning the first group and what one observes during the course of pneumothorax.

Among the local elements two conditions seem to be particularly responsible. The first one is the preponderance of the static trauma of which I shall speak in detail afterwards; the second one is the possibility of the presence of fibrous bands (which form adhesions) that go from the periphery of the cavity to that part of the wall which has remained rigid because it has not been reached by the costal demolition. In such cases the law of the dominant directions is substituted by the action of the circumscript adhesions which, wherever they are, maintain the direct action of the trauma due to the wall on the cavity, thus hindering its closure or elimination.

For this last condition, E. Morelli suggests the possibility of costal resection with *Velario di Compenso* at the level of establishment of adhesions, and in certain cases these adhesions can be localised by radiography.

III. A third indication given by Monaldi is: The chronic cavernous lesions, provided they are situated in such parenchymas which preserve largely their proper elasticity.

It is evident that this group besides the above mentioned lesions, includes also those groups with more recent lesions which for their clinical characters

are considered in the first and second indications. Such associations may very easily occur because of bronchogenic extension or post haemoptoic dissemination from a cavity of long duration. For these reasons when there is mention of chronic cavernous lesions it is only meant the fundamental characteristics of this group.

Such lesions even if of long duration, have not the possibility (because they are situated in territories which conserve ample movements) of being surrounded by fibrous tissue which would make them rigid, changing them so to say, in fixed cavities.

After the operation, two groups of phenomena follow for the cavities. The first one is characterised by the modification of the appearance of the periphery of the cavity; the second one in the diminution of the size of the cavity till its complete disappearance.

The antero-lateral thoracoplasty is not sufficient only in those cases where there is a prevalence of the static trauma on account of a particular position or big voluminous cavities or on account of the rigidity of the same (apical-subapical cavernous lesions, lobar cavities, cavitary fibrothorax).

In a few of such conditions Monaldi has proposed and is now experimenting a combined latero-posterior thoracoplasty which consists in the resection of the ribs from IV-VI along the line of the anterolateral thoracoplasty, and the posterior extirpation, with the technique of Prout-Maurer or Sauerbruch, of the segments of those ribs which maintain the local prevalence of the static factor. Usually it seems sufficient to take out only the first three ribs. The cases so treated in Carlo Forlanini Institute are still too few in number to allow a judgment about the value of such an intervention. However the advantages would be undoubtedly evident specially as far as the limitation of the operative trauma, very little deformity of hemithorax and the recovery of the functional state are concerned.

IV. The fourth indication given by Monaldi is: Circumscribed or diffuse lesions that are prevalently productive and which surround small cavities. (cirrhotic cavernous phthisis).

In this form the elimination of the micro-cavities can be obtained partly from the retraction of the remaining normal elastic parenchymatous tissue but mostly because of the transformation of the connective tissue while passing into the fibrous phase has a conspicuous retractive power. In such cases the antero-lateral thoracoplasty, while with the elimination of the residual movements furthers the ulterior formation of the connective tissue, depriving the wall of its resistance, allows the wall to mould itself over the cirrhotic lung; for this reason the viscera may easily assume a new morphological physiognomy deriving from the modified histological conditions.

The unsuccessful cases in this group of lesions may occur if the pericavernous connective tissue has already, before the operation, transformed itself into rigid fibrous tissue. Failures are also due to the cavities of all dimension which are not surrounded by sufficient parenchymal or cicatricial tissue, which upon retraction could be able to surround them. This may occur, for evident reasons, in the apical micro-cavities.

However, in the unsuccessful cases of the third and the last group there are almost always conspicuous improvements with a clearing of the cavernous zones, and with a notable diminution and sometimes complete disappearance of the expectoration, with the elimination of haemoptoic states, and with the return to normal of the general condition of the patient. Specially from these groups, come the socalled states of stabilization from which the condition passes to the clinical cure with small complementary operations of a demolitive character.

From what has been said the contraindications to the operation as far as types of lesions are concerned, are evident. Let us now consider the state of the contralateral lung. It is known that for the demolitive operations the absolute integrity of the other lung is necessary or at least the lesions should be of little importance and should have been healed a long time before the operation. For antero-lateral thoracoplasty such conditions are not absolutely required. Generally it is sufficient that the eventual lesions may be susceptible to treatment by one of the ordinary means of collapse-therapy, such as artificial pneumothorax, or the phrenic exairesis, and exceptionally, also, a partial antero-lateral thoracoplasty.

In such cases, at times before the operation, more often soon afterwards, the other lung may be

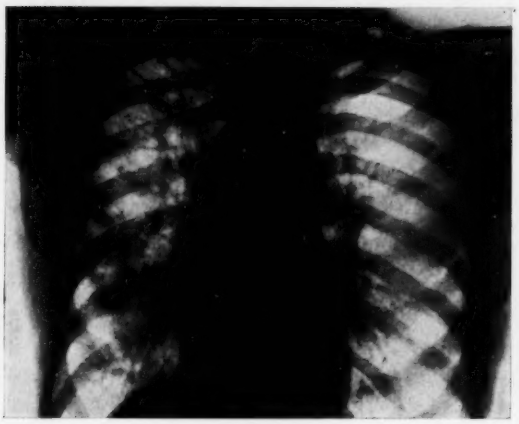

FIG. 4-A

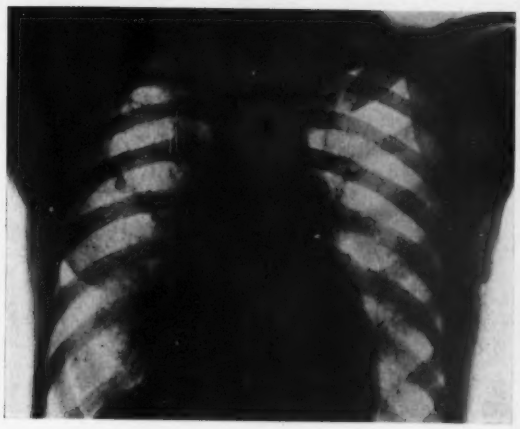

FIG. 4-B

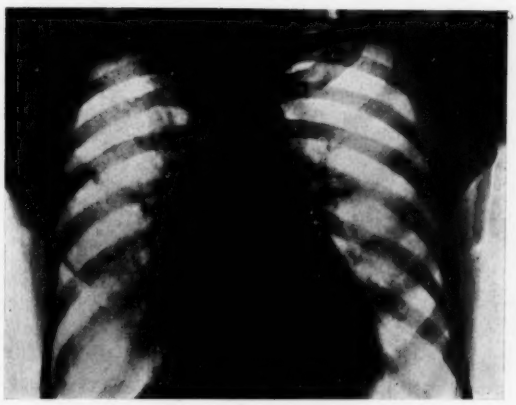

FIG. 4-C

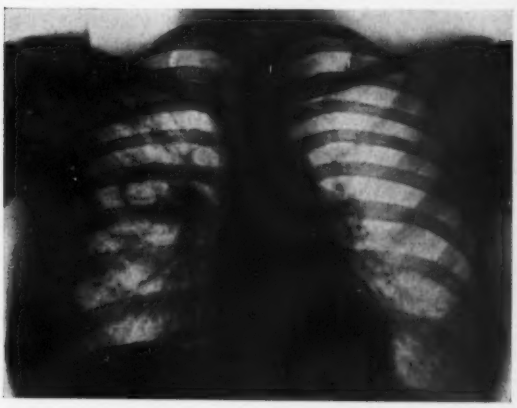

FIG. 5-A

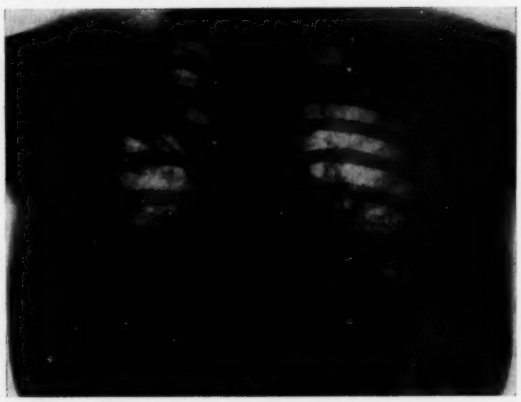

FIG. 5-B

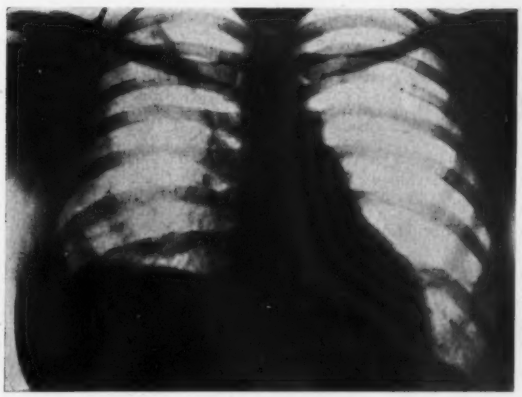

FIG. 5-C

Case I. Fig. 4-A : big infraclavicular and broncho-pneumonic diffusion right lung. Fig 4-B : July 7, 1935. After antero-lateral thoracoplasty (7 ribs removed) Fig 4. C : Nov. 1935. Cavity healed. Sputum negative since Aug. 1935. F. G. Fig 5. A : Big cavity in the middle of the right lung. Fig. 5. B : March 5, 1935. After phrenic exairesis and antero-lateral thoracoplasty (inferior type, only 3 ribs are removed) Fig. 5. C : April 10, 1935. Cavity healed. Sputum negative since February 1935.

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treated with one of the aforesaid procedures. In the Carlo Forlanini Institute, it has already been done in eleven cases with an antero-lateral thoracoplasty on one side and therapeutic pneumothorax on the other side. In three cases A. L. thoracoplasty on one side and phrenic exairesis has been done on the other side and there are other three cases in which partial bilateral thoracoplasty has been done.

Generally the antero-lateral thoracoplastic operation has been only partial and in those patients in which a contralateral phrenic exairesis has been done, the diaphragmatic paralysis had not been aimed in the other lung with antero-lateral thoracoplasty.

The possibility of doing a contralateral collapse-therapy has induced in this institute to do more frequently partial operations omitting in some cases the phrenic exairesis or performing largely the phrenic frassi (crushing of the phrenic nerve) with which there is usually a return of the diaphragmatic function in the first 8-12 months.

No bilateral case should be considered as hopeless and unsuitable for collapse treatment even if one lobe is healthy. The contraindications relating to other localizations of tuberculosis or to the existence of other diseases are almost the same which we have in pneumothorax. Even fairly advanced cases of laryngeal or intestinal tuberculosis and haemoptysis do not contraindicate collapse treatment by pneumothorax or thoracoplasty. As far as age is concerned, Monaldi's statistics contain patients from 14-50 years. Serious general conditions are not contraindications for the operation provided the toxaemia is in great measure due to the lesions for which the operation is done.

V. The fifth indication is as an operation complementary to other collapse-therapy procedures. There are two groups of cases: The partial pneumothorax clinically inefficient and the parapneumothorax empyemas.

Of the partial pneumothorax clinically inefficient, not to talk of those which can be made efficient with intrapleural pneumolysis according to Jacobaeus and which here do not interest us, there are two groups which can be considered. The first one in which the inefficiency is complete for the disposition of the gas is at the level of the undamaged territories while at the damaged part it is entirely absent; a second one in which the inefficiency is only partial in that the gas occupies some of the diseased areas while other seats of lesions are all or in part adherent.

As far as the scope of the antero-lateral thoracoplasty is concerned, the pneumothorax is useful in both occurrences. In the first case the pneumothorax gas, eliminating temporarily those directions of the parietal traction which could be magnified or interfere after the elimination of these with a direct action on the lesions, assures the perfect equilibrium in the retraction of the part treated with antero-lateral thoracoplasty. Therefore the existence of a pneumothorax will allow always the actuation of a partial operation limited to the zones of adhesions. On the other side the pneumothorax can be abandoned after the first few months, as soon as the process of healing is becoming evident because the repercussions of the remaining parietal movements are assuming at this stage a secondary value.

When the inefficiency of the pneumothorax is partial, the thoracoplasty limited to the areas of the adhesions, will complete only locally the action of the pneumothorax so that the pneumothorax must be maintained until the healing of these lesions directly interested, is reached.

The second indication as a complementary operation is the parapneumothorax empyemas. Such an indication arises from two understood facts of which one is theoretical and the other practical. The first one comes from the knowledge that an empyematic complication may assume a greater gravity than the lesions of the lung for which the collapse therapy has been done.

The second one comes from the application of the combined procedures of the anterolateral thoracoplasty for the pulmonary lesions and the progressive negative pressure distension with lavage, of which Monaldi himself has reported against tuberculosis in the recent Italian National Congress which was held last year in Rome.

The indications for such combined treatment can be gathered into two groups: The first one includes the cases of clinically inefficient pyopneumothorax; for these I may repeat the considerations already made about the partial pyopneumothorax. Another group is that of pyopneumothorax which is associated with a total retraction of the

lung, and therefore this would be efficient for the lesions; however the complication of pleura rebels to the ordinary treatment of pneumothoracentesis with lavage, which was made a system in Italy by E. Morelli. In such cases first progressive distension and lavage should be done so that the lung may partially reexpand until lesions of the lung are placed in evidence. At this point the operation of the anterolateral thoracoplasty of the type corresponding to the clinical case should be done. At the end, the pleural cavity is obliterated by means of progressive distension and lavage (−20, −30, −50, −100).

These are only the general indications for the clinical application of the anterolateral thoracoplasty. However these indications represent only the generalities, because every case requires a preliminary and detailed study and a right physiopathological conception which are at the base of the operation. Therefore this cannot be committed and judged as a simple technique but must be the result of a work strictly in harmony between surgically minded phthisiologist and medically and physiologically-minded surgeon, guided by the facts alone and not by conservatism or enthusiastic radicalism.

In this manner this new and promising surgical method of treatment of pulmonary tuberculosis opportunely applied, may effectively become the integration of the medical collapse-therapy.

THE ANTI-TUBERCULOSIS SCHEME IN VIENNA

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Since the infectivity of tuberculosis was established beyond doubt by Villemin in 1866 and then by the discovery of the bacillus by Koch in 1882, the fight against tuberculosis is growing stronger day by day. By way of radical treatment nothing has yet been discovered. In the absence of such treatment, the fight has taken more and more the shape of preventive measures against the spread of the disease, to trace the source of infection, and by removing it to prevent further infection.

A few years after the discovery of the bacillus by Koch, Sir Robert Philip of Edinburgh inaugurated the anti-tuberculosis scheme by establishing the first Tuberculosis Dispensary in his own city. And gradually, this anti-tuberculosis scheme has spread all over the world. Its methods are too well known to enumerate.

In Vienna there is a further improvement on the scheme. Led by Prof. E. Lowenstein in 1934, the Board of Health of Vienna has been trying to fight tuberculosis systematically through the school. Excepting a very few cases of authenticated congenital tuberculosis in the literature, and the view held by Calmette, Arloing and Dufourt that a filtrable form of intra-uterine infection may play a part in the hereditary transmission of the disease, it has been amply proved that the child is born free of tuberculosis, but later he becomes infected. Naegeli and others by post-mortem analysis—Hamburger and Monti in Vienna, and other workers in different cities throughout the world by tuberculin test have established, beyond doubt, the fact that the infection of tuberculosis increases with age from infancy through childhood to adult life. To protect the community, protection of the child is of prime im-

portance. earlier the infection is detected, and earlier the source, or, sources of infection found out, the better is the chance of the child against a second heavy re-infection. Again, early detection means early control of the disease by setting in early the methods of deturberculisation.

Attempts have been made by Calmette and his followers to immunize the infants of tuberculous parents by B. C. G. vaccine. The Tuberculosis Dispensary attempts at treating the tuberculous patient, adult or child, and tracing and removing the source of infection. In neither there is a wholesale organised attempt to examine the mass and to detuberculize the infected. The best place to examine the mass is where they are all aggregated, *i.e.*, at the compulsory schools so that everyone can be examined.

In Vienna, Lowenstein was able to convince the Board of Health to organize the fight against tuberculosis from the age of 5 or 6 years, that is, the age when the child first enters the school. So it is the earliest time that one can examine the children collectively. The Board of Health in Vienna began this fight on an organized basis. From the year 1925,[1] every child entering the school for the first time, that is at about the age of five or six years, was rubbed in with an inunction of dermotubin (a new prepation of killed tubercle bacilli made according to Lowenstein's method, and not a simple tuberculin like Moro's). The skin of the arm, back, chest or any other suitable part is first cleaned with alcohol or ether, and then a drop of dermotubin, the size of a pin's head, is taken on the glass rod attached to the stopper of the bottle, and applied to the clean skin, well rubbed in until it is absorbed, which takes about a minute. The results are read at intervals of 24, 48 and 72 hours. The reaction is positive if single nodules appear, but it is not unusual for many nodules to appear. If the reaction is negative a second test is made a week later as above. The results were so excellent that the Board of Health has continued his method for the last ten years. Dr. Fritz Schenk[2] of the School Health Committee reports the results of 60,000 cases up-till 1929. The completed reports up to 1935 are not yet in hand. It is possible to infer that nearly 100,000 children have been rubbed in with the Dermotubin till now. Not one case of any untoward symptom has been reported or found yet.

It is interesting to know that on an average 32% of the children examined were positive to the test. But there are classes where not a single child gave a positive result—on the other hand there were classes which gave about cent per cent. positive results.

Taking the average class, if a child gives a positive result the child should be thoroughly examined. If there are no positive clinical findings, the child must still be observed for future, and examined at least every six months. If clinical findings are positive, the child should be taken out of the class, for children are able to infect one another very quickly.

In the classes in which 90 or 100% of children gave positive reactions, there was always an open case of tuberculosis in the class with bacilli in the sputum—either the class teacher or one of the scholars was suffering from the disease. Dr. Schenk, a school physician of Vienna, made an interesting observation. He discovered in a class an open case of tuberculosis. He removed the child, and after seven months' treatment readmitted him to a new class. After three months he found only three boys in the class reacted positively—they were sitting in front of, to the right, and left of the infected boy. In another class where he found 100% reacted positively, the teacher was found to suffer from open tuberculosis.

This simple observation tells the whole story of the spread of the disease. If a case of open tuberculosis is found, it must be taken away to a reserved place till the process is healed, and the danger of infection is excluded.

There are two sources of infection for the child. The more important is the family—and very often a positive reaction is due to an open, but hitherto undetected case of tuberculosis in the family. The second source is the school on which Dr. Schenk has laid such stress in his report.

The fighting programme against tuberculosis in Vienna has been carried to still younger days. In Great Britain the mortality from tuberculosis has usually two peaks—the first is usally between 1 and 2 years, and the second peak between the ages of 17 and 35. A similar peak is obtained in Vienna too. To check this early peak, anti-tuber-

culosis measures are set in with the birth of the child. By careful statistics prepared by the different districts a record of all open cases of lung tuberculosis is kept. There are thus 7 to 8 thousand open cases in Vienna alone. They are carefully watched—any children born in their houses are immediately found out and very quickly dealt by the Antituberculosis Association. On account of the great poverty prevalent in Vienna, about 60 to 70% of all births take place in institutions, and therefore there is more direct control on the child and on the mother. If a child is born of a tuberculous mother, the child is removed to a special baby institution for three months and then returned to the moher with special instructions and is constantly watched by the Association people—or, if the conditions for the child are not deemed very congenial at home, it can be brought up after these three months in a tubercle-free family, if the parents are willing and bear the cost (Grancher System). In some needful cases, the state may bear a part of the financial cost. If the father is tuberculous, and the mother provides milk for the baby, the mother and the baby are both removed and kept in an institution for three months,—after which time they return home under vigilant supervision of the Tuberculosis Dispensary (Tuberkulose fürsorge). In other cases, where the removal of the mother with the baby is not possible on account of home conditions, the father is kept away from the home, sometimes in institutions, sometimes in other places. It is to be noted that this period of three months is not the absolute period during which infection can only take place and not after. This period is rather chosen arbitrarily by a state with a slender purse, as a minimum, to do something for its unlucky babies—with more money at disposal the state might have kept them longer under their care. The immediate taking charge of the newborns at their most susceptible period of life, and the subsequent careful vigilance of the Tuberkulose-fürsorge of the district to which the mother belongs, speak very highly of the alertness of the city health authorities in the discharge of their responsibility for anti-tuberculosis work. This portion of the work will in time lower the first peak of the tuberculous mortality curve.

The last is not all. The possibility of tuberculous infection is borne in mind throughout the whole childhood period. Though no organized attempt is possible and therefore made between the first and sixth years to trace the infected child (which can only be made possible by a house to house search by the state and private doctors in a concerted action, which is itself very tedious and very expensive), yet whenever a child from the time of its birth till the fifteenth year enters the hospital suffering from any disease whatsoever, he or she is tuberculin-tested, and the positive reactors are duly reported. No chance for detecting tuberculous infection in the child is ever missed, but zealously carried through whether in school, or, in hospital wherever the child presents itself to the health authorities.

Discussion

In Vienna one thus finds a definite forward march in anti-tuberculous work. With the influx of new ideas and new data Vienna has moved forward, and has incorporated them in her anti-tuberculosis scheme. The children are taken care of from birth. Vienna has embarked rather on the more expensive three-months-stay period in institutions rather than hazard on a dubious prophylaxis as B. C. G. vaccine. Calmette's method has not found any favour in Vienna. Von Pirquet was definitely against it. A few cases were tried in hospitals under strict surveillance, but the results were not such as to warrant its universal use through the Tuberculosis Dispensary. Then came the Lübeck disaster, and though it was proved to be due to the faulty handling of the doctor concerned, rather than an intrinsic fault of the B. C. G. vaccine, Vienna has not recovered from the shock yet to apply the method. On the other hand, Heynsius van den Bergh from Amsterdam has reported good results with B. C. G. vaccine from his clinic. Also, after going through the able and impartial treatise on B. C. G. by Irvine,[3] one would not discard B. C. G. as wholly unconvincing. The method is much cheaper. In the recent Tuberculosis Congress of Great Britain held in Southport, June, 1935, there was a strong tendency in some quarters to try the B. C. G. vaccine in England on a prophylaxis basis with children of tuberculous parents. But as matters stand to-day, there is no direct organized attempt to help the unfortunate children of open tuberculous cases.

The idea of tuberculin-testing of all children entering a hospital is good and sound. But more

important is the testing with tuberculin every school child entering his or her first year in school. It not only supplements, but over-rides in importance the ordinary Tuberculosis Dispensary. Instead of having only chance cases to examine, and allowing the infected children to drift till clinical symptoms have appeared, and the disease has been well established, this school prophylaxis method aims at an early diagnosis of infection and periodical examination clinically and readiologically of all positive reactors so that the disease can be traced in its earliest stages when the chances of recovery are very fair. This method can be employed in any country with great profit. Through the School Health Service the test can be universally employed. It will entail a little more work and probably a little more extra money. But judging from the possible benefits that will accrue to the society, the immediate cost and labour should not deter one from an early application of the method. Instead of applying the test only in the school-entering year, and paying no heed to possible infections that may occur in the later years of the child in the school on economic grounds, one should employ it, every five years at least, if not at shorter intervals, to every negative reactor to find whether the child has become infected. Thus a continuous vigilant watch can be maintained throughout the whole of the school-going age period. Only healthy, young men and women are thus enabled to face the full responsibilities of life at the end of adolescence, and those who are otherwise are permitted to live a sheltered life, and occupation suitable to their conditions may be found. Thus tremendous responsibilities on unsuspected tuberculous individuals immediately on leaving school are avoided, and this may very favourably modify the second peak in the tuberculous mortality curve in time to come. Every school teacher should be examined periodically for exclusion of active tuberculous cases. The source of infection in every case whether in the family or in the school should be traced, and segregated so long as he or she is infective to the community.

SUMMARY

The methods in use in Vienna can thus be summarised to consist of:—

(1) the ordinary Tuberculosis Dispensaries—"Tuberkulose-fürsorge",

(2) the examination of every school-entering child at the age of 5 or 6 years.

(3) organized provision for infants born of tuberculous parents,

(4) and a careful record of, and watch on all its open tuberculous cases with a view to effective prevention of infection.

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OBSERVATIONS ON SUGAR-CONTENT OF NORMAL URINE AND ITS RELATION TO NORMAL BLOOD-SUGAR

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AND
M. N. RUDRA, M.Sc.

It has been definitely established that normal urine contains a reducing and fermentable sugar but the nature of the sugar still forms a subject for controversy. As the literature on this subject is found in many cases contradictory, a short review of the present situation is likely to be interesting.

Pucher (1925) prepared osazones from several samples of urine but came to the conclusion that they were not glucosazone. Patterson (1926) found that the reducing action of urine was not changed after treatment with yeast. Osazone prepared from urine was hexosazone but the crystals were not like those of glucosazone. Greenwald et al (1927) found fermentable sugars in urine at intervals during the day and believed them to be non-glucose in nature. Vanslyke (1929) found by gasometric method a fermentable sugar appearing in normal urine two hours after breakfast. Everett et al (1930) claim that the sugar in normal urine is probably a pentose or methyl pentose. Harding and Grant (1931) found galactose and a fermentable sugar in normal urine after hydrolysis. Everett and Shephard (1931) claim that the urinary sugar is ketose. These authors (1932) are of opinion that phenyl semicarbazide (from urea) is a principal component of the osazone prepared from normal urine. West and Steiner (1932) claim that a fermentable sugar occurs in urine both normal and fasting and that this sugar is glucose. Harding and Selby (1933) are of opinion that a certain substance other than glucose and removable by yeast occurs in fasting urine in normal health. These findings form, however, only a small fraction of the vast amount of a conflicting literature dealing with a subject so important from biochemical point of view.

The object of the present investigation is to determine the sugar-content of normal urine and to try to find out its relation, if any, to that of normal blood without entering into any discussion about the nature of the sugar present in urine.

McCay et al (1918-1919) were the first in the field in this country and tried to determine the sugar-content of the normal urine of the healthy Bengalees but they were handicapped for want of an accurate method of determination. Bose (1923) also made an investigation on the same line with a much better method. Several American investigators have worked out mehods by which the sugar-content of normal urine can be accurately determined. Kingsbury is one of them and has lately worked out a simple colorimetric method which gives very satisfactory result. After a slight modification as suggested by one of us (M. N. R.) we got accurate and constant results by the Kingsbury method. The successful control experiments with known amount of glucose added to urine showed the accuracy of this method. The underlying principle depends on the fact that formaldehyde in the presence of very small amount of reducing sugars is rapidly condensed into formose which together with the reducing sugars of the urine reduces the Kingsbury reagent to a red colouring matter which is compared colorimetrically with a standard glucose solution treated exactly in the same way and after dilution to a definite volume. The stock reagent of Kingsbury consists of 2:4—dinitro 1—naphthol 7—sulpho-

nic acid 0·6%), sodium sulphite (3·2%) and anyhydrous sodium carbonate (4·6%). The urinary reagent, as modified by us, is prepared by adding 5 c.c. of 5% formaldehyde to every 100 c.c. of the stock.

In the present investigation the sugar-content of urine has been determined by the modified Kingsbury method and the blood-sugar by Hagedorn and Jensen method. Although it is desirable to examine both urine and blood by the same method to obtain strictly comparable results, we thought it expedient to adopt two different methods for the sake of their simplicity. The Hagedorn-Jensen method for blood-sugar is popular and is used extensively for accurate clinical work and as such we did not like to change it for a new and complicated method. We satisfied ourselves by making a series of control experiments by both methods with known amounts of glucose so that no fallacy of a serious nature might be introduced to vitiate the results and that the same reducing substances were determined in both cases.

The samples of urine for our investigation were taken at about midday, two hours after the principal meal. Blood was taken simultaneously at the time of collecting the urine. In all the determinations duplicate experiments were made and in cases where the results appeared too high or too low, the experiments were repeated on two consecutive days to correct or confirm the abnormal findings.

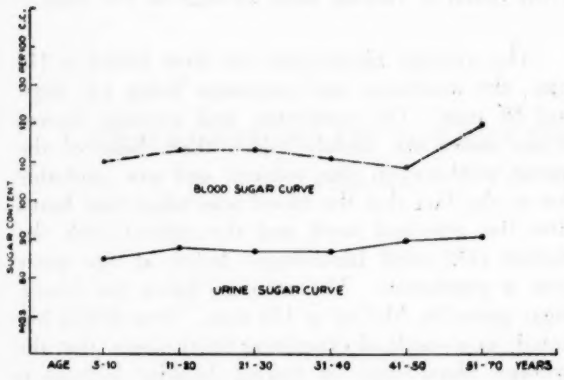
From the table appended it will be found that the sugar-content of normal urine varies from 36 mgs. to 110 mgs. per 100 c.c. of urine, the average being 89 mgs. that is, the average sugar-content of normal urine passed two hours after the principal meal. McCay and his collaborators (1918-19) found that the sugar-content of normal urine varied from 10 mgs. to 120 mgs., the average being 65 mgs. which is just one-half of the average blood-sugar of the healthy Bengalees. Vanslyke (1929) found in American subjects that in normal urine passed two hours after breakfast the amount of total reducing substances varied from 64 mgs to 300 mgs and the amount of fermentable sugar from 7 mgs to 63 mgs, but only 3 urines out of 27 showed more than 23 mgs. Bose (1923) found urinary sugar to vary from 80 mgs. to 150 mgs., the same as in the blood of the healthy Indians. Wallis and Bose (1922) found it in the healthy Europeans to vary within the range of 60 mgs and 100 mgs while Folin and Svedberg (1926) found it varying from 25 mgs to 117 mgs.

The average blood-sugar we have found is 112 mgs., the maximum and minimum being 142 mgs. and 88 mgs. The maximum and average figures in our series are slightly higher than those of the recent workers on the subject and are probably due to the fact that the blood was taken two hours after the principal meal and the subject with the highest (142 mgs) blood-sugar being at the same time a vegetarian. The average figure for blood sugar given by McCay is 130 mgs. Bose (1932) has found, as a result of examining thirty cases, that the average blood-sugar of fasting healthy Indians is 101 mgs, the maximum and minimum being 112 mgs and 85 mgs respectively.

From the table it will be seen that the urine-sugar and blood-sugar which we have found are the lowest among the Bengalees (living in Bihar)—the average being 85 mgs and 104 mgs respectively. The corresponding figures for the Biharis are 93 mgs and 118 mgs and those for the Oriyas are 90 and 123 mgs (the number of Oriya cases is, of course, not a large one). An analysis according to religion shows that the average urinary-sugar and blood-sugar of the Hindus are 89 mgs and 113 mgs and those of the non-Hindus (Muslims and Christians) 87 mgs and 104 mgs. This is what is expected as a large percentage of the Hindu cases were vegetarians. The average urine and blood-sugar of the vegetarians are 93 mgs and 123 mgs respectively and those for the non-vegetarians are 88 mgs and 110 mgs respectively. The highest urine-sugar (110 mgs) was found in the urine of a vegetarian Bihari Hindu student and the highest blood-sugar (142 mgs) was also found in another vegetarian Bihari Hindu student. It is interesting to note that in children (including a child of 5 years) the blood-sugar and urine-sugar are practically on the same level as that of the adults. The age, therefore, does not seem to make any impression on the sugar-contents of normal blood and urine provided the diet and other factors remain the same.

On plotting the average sugar-contents of normal urine and blood against age in groups of ten years we get two curves which run almost parallel and

show that there is some relationship between the sugar-contents of normal urine and normal blood, but



probably no relation between the sugar-contents and the age factor. The slight increase in the height of the curves with age, as seen in the graph is probably an accident and is likely to disappear if larger number of cases in each age-group are investigated.

It will be noticed in the tables that diet is responsible for higher values of the ratio between the blood-sugar and urine-sugar and that the different ratios for different races and sex are only a manifestation of the all-important diet factor.

In conclusion we would like to state that this investigation was carried on in the Chemical Laboratory of the Prince of Wales Medical College, Patna, and had to the stopped early on account of transfer of the senior author who was the head of the Chemical Department there, to Calcutta as Chemical Examiner to the Government of Bengal.

TABLE I.

SERIAL NO.	NAME	NATIONALITY AGE, SEX, ETC.	DIET.	SUGAR CONTENT IN MGS. PER 100 C.C. URINE.	BLOOD.	OCCUPATION
1.	J. C. D.	Ben. H. M. 40	Non-vegetarian	100	126	Chemist.
2.	M. N. L.	Ben. H. M. 32	,,	76	97	Doctor.
3.	M. N. R.	Ben. H. M. 33	,,	69	98	Chemist.
4.	A. A.	Ben. M. M. 62	,,	83	90	Labourer.
5.	R. P. T.	Bi. H. M. 46	Vegetarian	100	122	Lab. asstt.
6.	R. P.	Bi. H. M. 24	Non-vegetarian	92	96	Lab. boy.
7.	K. N. B.	Ben. H. M. 45	,,	80	95	Doctor.
8.	K.	Bi. H. M. 28	,,	80	112	Lab. boy.
9.	A. A.	Bi. M. M. 33	,,	83	95	Lab. asstt.
10.	S. C.	Ben. H. M. 33	,,	80	93	Doctor.
11.	R. C.	Bi. H. M. 32	Vegetarian	97	138	——
12.	K. P.	Bi. H. M. 32	,,	70	130	Clerk.
13.	N. K. P.	Bi. H. M. 38	Non-vegetarian	94	137	Pleader.
14.	B.	Bi. H. M. 25	,,	93	132	Sweeper.
15.	B.	Bi. H. M. 27	,,	91	100	Gas-mistry.
16.	R. N. D.	Ben. H. M. 26	,,	85	97	Lab. Asstt.
17.	B.	Ben. H. M. 36	,,	80	88	,,
18.	G. B.	Ben. H. M. 30	,,	91	90	,,
19.	P.	Ben. H. M. 31	,,	89	106	,
20.	K. P.	Bi. H. M. 18	,,	85	115	Student.
21.	B. M. P.	Or. H. M. 19	,,	83	117	,,
22.	S. K. P.	Ben. H. M. 20	,,	94	116	,,
23.	L. S. P.	Bi. H. M. 19	,,	93	125	,,

SERIAL NO.	NAME	NATIONALITY AGE, SEX, ETC.	DIET.	SUGAR CONTENT IN MGS. PER 100 C.C. URINE.	BLOOD.	OCCUPATION
24.	R. P. S.	Bi. H. M. 20	Vegetarian	99	142	Student.
25.	R. P. V.	Bi. H. M. 22	Non-vegetarian	92	114	,,
26.	I. C. M.	Or. H. M. 21	,,	96	125	,,
27.	R. N. M.	Or. H. M. 22	,,	83	127	,,
28.	C.	Bi. H. M. 31	,,	100	117	Lab. boy.
29.	K. J.	Bi. H. M. 21	Vegetarian	110	124	Student.
30.	S. P.	Pu. H. M. 21	Non-vegetarian	83	107	,,
31.	S. M.	Ben. H. M. 16	,,	82	109	,,
32.	S. A. M.	Bi. M. M. 22	,,	91	109	Student.
33.	A. G.	Ben. H. M. 19	,,	87	102	,,
34.	M. N. S.	Bi. H. M. 18	,,	85	113	,,
35.	K. M.	Ben. H. M. 19	,,	89	106	,,
36.	J. K. P.	Bi H M. 21	Vegetarian	97	103	,,
37.	S. M.	Bi. H. M. 20	Non-vegetarian	93	132	,,
38.	S. P. C.	Bi. H. M. 21	,,	94	112	,,
39.	J. M. S.	Bi. H. M. 19	Vegetarian	86	108	,,
40.	J. S.	Bi. H. M. 33	,,	79	113	,,
41.	D. L. P.	Bi. H. M. 20	Non-vegetarian	102	110	,,
42.	A. S.	Bi. M. M. 24	,,	101	105	,,
43.	P. N.	Bi. H. M. 20	Vegetarian	99	118	,,
44.	L. P. V.	Bi. H. M. 21	,,	91	127	,,
45.	C. P. S.	Bi. H. M. 22	Non-vegetarian	94	141	,,
46.	A. C. B.	Ben. H. M. 38	,,	93	95	Chemist.
47.	J. D.	Or. H. M. 20	Vegetarian	95	126	Student.
48.	N. K. L.	Bi. H. M. 20	Non-vegetarian	95	101	,,
49.	R. N. S.	Ben. H. M. 19	,,	97	103	,,
50.	R. S.	Bi. H. M. 20	,,	94	132	,,
51.	Mrs. R.	Ben. H. F. 69	Vegetarian	97	125	——
52.	A. C. C.	Ben. H. M. 50	Non-vegetarian	95	96	Doctor.
53.	Mrs. B.	Ben. H. F. 34	,,	92	97	——
54.	M. B.	Ben. H. F. 14	,,	36	91	——
55.	M. B.	Ben. H. F. 11	,,	85	97	——
56.	L. R.	Ben. H. F. 22	,,	107	121	——
57.	K. B.	Ben. H. M. 5	,,	85	110	——
58.	K.	Ben. H. F. 13	,,	89	112	——
59.	I. N. A	E. M. 44	,,	86	102	——
60.	Mrs. P. G.	Ben. Ch. F. 45	,,	83	118	Lady Doctor.
61.	A. C.	Ben. H. M. 8	,,	84	109	——
62.	K. D.	Ben. H. F. 6	,,	87	111	——
63.	G.	Ben. H. M. 66	,,	89	124	——
64.	P. B.	Ben. H. F. 12	,,	72	98	——
65.	B.	Or. H. M. 35	,,	92	118	Domestic servant.
66.	M.	Or. H. M. 40	,,	89	124	,,
67.	K.	Bi. H. M. 44	,,	95	123	,,
68.	H.	Or. H. M. 38	,,	96	126	,,
69.	J.	Or. H. M. 51	,,	88	125	,,
70.	P.	Or. H. F. 39	,,	91	119	,,

N.B.—Ben.—Bengalee, Bi.—Bihari, Or.—Oriya, Pu.—Punjabi, E.—European.

TABLE II.

Showing average Sugar-contents of normal blood and urine and their ratio (Blood/Urine) according to race, religion, sex and diet (in mgs. per 100 c.c.).

RACE, RELIGION, ETC.	BLOOD-SUGAR	URINE-SUGAR	BLOOD-SUGAR URINE-SUGAR RATIO
Bengalees	104	85	1·22
Biharis	118	93	1·27
Oriyas	123	90	1·36
Hindus	113	89	1·27
Non-Hindus (Muslims and Christians—all non-vegetarians)	104	87	1·19
Vegetarians (All Hindus)	123	93	1·32
Non-vegetarians	110	88	1·25
Males	113	90	1·25
Females	109	84	1·30
For all the cases investigated	112	89	1·26

TABLE III.

Showing maximum and minimum sugar-contents of normal blood and urine (in mgs. per 100 c.c.).

	BLOOD-SUGAR		URINE-SUGAR	
	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM
Males	142	88	110	69
Females	125	91	107	36
Hindus	142	88	110	36
Non-Hindus	118	90	101	83
Vegetarians	142	103	110	70
Non-vegetarians	141	88	107	36

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CIRRHOSIS OF THE LIVER IN NORTHERN CIRCARS (SOUTH INDIA)

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PREFACE

In spite of the fairly high incidence of cirrhosis of the liver in the Northern Circars (Madras Presidency, S. India) and in India in general, no data regarding the condition were available from this country in the compilation of its incidence in different parts of the world in the first International Conference of Geographical Pathology, held in 1931, where the subject of cirrhosis of the liver was taken for consideration. *Decompensated portal cirrhosis* of the liver in the Northern Circars, as judged from the available hospital statistics, is a common condition the causation of which is very obscure and the treatment unsatisfactory. Divergent views are held about the causation of cirrhosis of the liver by workers in other parts of India, where the disease is also prevalent.

The investigation, the first of its kind in the Northern Circars, on which the present thesis is based, was commenced four years ago (in July, 1931) under the direction of Rao Bahadur Dr. T. S. Tirumurti, Professor of Pathology, with a view to elucidating the important problems of cirrhosis of the liver as met with in the Northtrn Circars. The clinical part of the work was carried out among the in-and out-patients of the King George Hospital, and the pathological, bacteriological, biochemical and pharmacological studies were conducted by the author in the respective laboratories attached to the Medical College, Vizagapatam. During the first two years of this investigation he worked as a Research Fellow under the auspices of the Andhra University, Waltair, and during the later two years as a Tata Research Scholar, under the 'Lady Tata Memorial Trust', Bombay.

On account of the high incidence and mortality, and obscure aetiology, the problems of *decompensated portal cirrhosis* of the liver in adults and the so-called *infantile biliary cirrhosis* in children, were taken up for intensive study.

As most of the cases of cirrhosis of the liver in adults are admitted into the hospital in the decompensated stage with ascites, and as divergent views are held about the causation of the common form of ascites in India, a preliminary investigation had to be undertaken which convincingly showed that cirrhosis of the liver and decompensation of the heart are the most common causes of ascites in the Northern Circars. *Decompensated portal cirrhosis* of the liver in adults was studied in great detail and the conclusions arrived at throw light on the different problems associated with it.

The so-called *infantile biliary cirrhosis* which is said to be peculiar to India and which takes a high toll of life among Indian children, was investigated with special reference to the Northern Circars. Particular attention was paid to the study of the clinical and laboratory findings in the different stages of the disease, which showed that it is probably a 'sub-acute toxic cirrhosis' of the liver. As a correct appreciation of the pathogenesis of this obscure disease depends on an accurate description of the morbid histological changes in the liver, considerable attention was bestowed on an intensive study of this subject by modern histological technique. The conclusion arrived at by this investigation corroborates the above clinical observations.

As there is divergence of opinion regarding liver function tests in general and their application in cirrhosis in particular, a detailed investigation of some of the important hepatic function tests

(Rose Bengal dye excretion test, the lævulose and galactose tolerance tests, etc.) were carried out.

The experimental work on 'cirrhosis of the liver following chronic intoxication with carbon tetrachloride' was taken up mainly to investigate the nature and evolution of the cirrhosis induced thereby, as it was hoped that such a study would contribute to an understanding of the genesis of fibrosis in human cirrhosis.

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Part I.

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Part II.

Chapter I. Some observations on the metabolic disturbance in cirrhosis of the liver.
Chapter II. Hepatic function tests and cirrhosis of the liver.

Part III.

Cirrhosis of the liver following chronic intoxication with carbon tetrachloride: An experimental study.

Part IV.

Appendix—List of Scientific Publications

(1) An investigation into 'Decompensated portal cirrhosis'. Published in the *Indian Journal of Medical Research*. Vol. 21, No. 2, (October, 1933), pp. 389-416.
Abstracted in the *Tropical Diseases Bulletin*, Vol. 31, No. 5, (May, 1934), p. 342.

(2) The incidence of portal cirrhosis of the liver in Vizagapatam, based on a critical study of autopsy records and observation (conjoint paper). Published in the *Indian Medical Gazette*, Vol. 69, No. 2, p. 74, (Feb., 1934).

(3) The role of Malaria in the causation of cirrhosis of the liver—a preliminary note (conjoint paper).
Published in the *Journal of the Indian Medical Association*, Vol. 4, No. 8, (April, 1935), p. 315.
Abstracted in the *Tropical Diseases Bulletin*, Vol. 32, No. 10, (October, 1935), p. 741.
Studies on 'Infantile biliary cirrhosis' (S. Nos. 4, 5, and 6).

(4) Part I. Introduction and a review of the literature (conjoint paper). Published in the *Indian Journal of Pediatrics*, Vol. 1, No. 3, (April, 1934), p. 153.

(5) Part II. Observations on the normal dietary of infants and children in Vizagapatam.
Published in the *Indian Medical Gazette*, Vol. 69, No. 3, (March, 1934), p. 142 and in the *Indian Journal of Pediatrics*, Vol. 1, No. 3, (April, 1934), p. 159.
Abstracted in the *Nutrition Abstracts and Reviews*, Vol. 4, No. 1, (July, 1934), p. 142.

(6) Part III. Observations on Infantile biliary cirrhosis in Vizagapatam.
Published in the *Indian Journal of Pediatrics*, Vol. 1, No. 3, (April, 1934), pp. 166-199.
Abstracted in the *Archivos espanoles de pediatria*, (Madrid), Vol. 18, No. 6, p. 377, 1934; *Year Book of Pediatrics*, April, 1934, p. 126.
Abstracted in the *Zentralblatt fur die gesamte Kinderheilkunde*, (Berlin), Vol. 29, No. 13, p. 415, 1934. Published in the *Antiseptic*, Vol. 31, No. 10, (October, 1934), p. 723.

(7) A short survey of our present knowledge of infantile biliary cirrhosis and some reference to the problems connected with it. (conjoint paper).

(8) Histo-pathology of the liver in 'Infantile biliary cirrhosis'.
Published in the *Indian Journal of Medical Research*, Vol. 23, No. 1, (July, 1935), p. 69.
Abstracted in the *Indian Journal of Pediatrics*, Vol. 2, (October, 1935), p. 341.
Abstracted in the *Journal of the American Medical Association*, Vol. 105, No. 16, (October, 1935), p. 1305.

(9) Biliary infection and Hepatic fibrosis—as met with in Circars (South India) (conjoint paper). To be published.

(10) Infantilism and cirrhosis of the liver. Published in the *Indian Medical Gazette*, Vol. 69, No. 2, p. 64, (February, 1934).

(11) Syphilitic cirrhosis of the liver with ascites in a child. Published in the *Indian Medical Gazette*, Vol. 69, No. 2. p. 78, (February, 1934).

(12) Syphilitic cirrhosis of the liver associated with glycosuria in a child. Published in the *Indian Medical Gazette*, Vol. 69, No. 2, p. 82 (February, 1934).

(13) An investigation into the causation of ascites. Published in the *Indian Journal of Medical Research*, Vol. 20, No. 2, October, 1932, pp. 459-488.
Abstracted in the *Journal of American Medical Association*, Vol. 100, No. 4, (January 28, 1933), p. 297.
Abstracted in the *Tropical Diseases Bulletin*, Vol. 30, No. 9, p. 644 (September, 1933).

(14) The role of dysentery in the causation of ascites, as gleaned from a study of the post-mortem records and observations (conjoint paper). Published in the *Journal of the Indian Medical Association*, Vol. 1, (June, 1932), p. 423.

(15) A note on the value of the ascitic fluid for Wassermann reaction and agglutination tests with dysentery organisms.
Published in the *Indian Medical Gazette*, Vol. 68, No. 12, p. 687 (December, 1933).

(16) The incidence of splenomegaly in Vizagapatam with special reference to the association with cirrhosis of the liver, as gleaned from a study of the autopsy records (conjoint paper). Published in the *Journal of the Indian Medical Association*, Vol. 2, No. 7, (March, 1933), p. 269.

(17) The clinical value of the Rose Bengal Test for the determination of the total functional capacity of the liver.
Published in the *Indian Journal of Medical Research*, Vol. 20, No. 4 (April, 1933), pp. 1009-1032.
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(20) The chemistry of blood in cirrhosis of the liver.
Published in the *Journal of the Indian Medical Association*, Vol. 3, No. 6, (February, 1934), p. 219.
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(21) Special case-sheet for investigation into cirrhosis of the liver.

(22) The Role of Malaria in the causation of cirrhosis of the liver (conjoint paper).
Published in the *Indian Journal of Medical Research*, Vol. 24, No. 1, (July, 1936), p. 149.

PART I

Definition and Classification of Cirrhosis of the Liver

Definition. The divergence of opinion regarding the pathogenesis of fibrosis in the liver, especially in some of the important types (*eg.* portal cirrhosis), has no doubt been the cause of the lack of an exact definition of the word "cirrhosis". The term "cirrhosis" is often used to denote any type of hepatic fibrosis, degenerative or inflammatory, diffuse or patchy, authough it was first invented by Laennec (1819) to denote the condition of portal cirrhosis, now named after him, in which, as pointed out later, the fibrosis is degenerative (replacement fibrosis) and diffuse in nature. Though it is generally agreed that a diffuse fibrosis involving the entire organ should alone constitute a cirrhosis (Josselin de Jong, 1931), the distinction between degenerative and inflammatory lesions of the liver is not often taken seriously into consideration in the study of hepatic cirrhosis (Chapman, Snell and Rowntree, 1933).

During the study of the pathogenesis of the fibrous tissue in some of the important types of hepatic fibrosis during the course of this investigation, it became clear that the application of the terms 'cirrhosis' and 'sclerosis' to degenerative replacement fibrosis and inflammatory productive fibrous hyperplasia respectively, as suggested by Ramachandra Rao (1933), would greatly facilitate classification in hepatic cirrhosis. As pointed out later, replacement fibrosis is the characteristic feature of portal, toxic and cardiac types; in the two former types the regenerated areas show a loss of the normal parenchymal pattern (pseudolobulation), while in

the latter the normal lobular pattern is reproduced in the regenerated areas.

The term "cirrhosis" retained to describe all the features of the condition to which it was first used by Laennec, may be defined as follows: A diffuse degenerative hepatitis and replacement fibrosis associated with pseudolobulation.

Classification. A clinical classification of cirrhosis of the liver (that can be satisfactorily used at the bed side) is lacking. During the course of this investigation, it was found that classifications based either on aetiology or important clinical features, such as ascites, jaundice, splenomegaly, etc., were equally disappointing, on account of the uncertainty of the former and the non-specificity of the latter, which varied to a great extent even in the same type of case; it was rare to find at autopsy a morbid anatomical condition of the liver altogether different from that diagnosed during life. Thus, the classifications of Chauffard (vascular, biliary and capsular) mainly based on aetiological grounds, and of Senator (portal, biliary and hypertrophic biliary), Fiessinger (ascitogenic and icterogenic) and Rowntree (compensated and decompensated; portal or ascitic; and biliary or icteric) have alike been found unsatisfactory.

As pointed out by Ramachandra Rao (1933), a classification based mainly on gross anatomical features (colour, consistency, size, weight, shape, granularity of the surface, etc.) appears to be equally unsatisfactory; these features were inconstant and often varied in the same type of cirrhosis in the autopsy material studied in this investigation.

While one agrees that a classification based on the histological appearances in the liver is more satisfactory than any of the classifications hitherto adopted, the classification suggested by Rolleston and McNee (multilobular, unilobular, intercellular, mixed and sporadic), though based on miscroscopical appearances, cannot be regarded as accurate, since it is based on appearances which cannot always be regarded as characteristic of a particular type of cirrhosis. Thus, a multilobular type may be seen both in portal and toxic cirrhosis and an intercellular type may be met with in the interstitial fibrosis of congenital syphilis and, as pointed out later, in some of the cases of sub-acute toxic cirrhosis of children.

A classification mainly based on the manner of the histogenesis of the hepatic sclerosis, as suggested by Ramachandra Rao (1933), appears to be more satisfactory than any of the classifications hitherto adopted. The following classification, which is a slight modification of that suggested by Ramachandra Rao (1933), is adopted during this investigation:

HEPATIC FIBROSIS

(A) *Degenerative.*
- (i) with pseudolobulation (cirrhosis):
  - (a) portal cirrhosis—Alcoholic.
    Pigmentary.
    Splenomegalic.
    Wilson's.
    Latent.
  - (b) Toxic cirrhosis—Sub-acute toxic cirrhosis of children.
    Toxic cirrhosis of adults.
- (ii) without pseudolobulation:
  - Cardiac fibrosis (fibrosis of chronic cardiac liver).

(B) *Inflammatory (Sclerosis):*
- (i) Biliary sclerosis:
  - (a) cholangitic.
  - (b) cholostatic—Obstructive in adults.
    Congenital obliterative.
  - (c) *cirrhosis mixtes.*
- (ii) Diffuse interstitial infections:
  - (a) Congenital syphilis.
  - (b) Tuberculosis.
- (iii) Periportal and focal sclerosis:
  - (a) Parasitic.
  - (b) Tertiary syphilitic.
  - (c) Senile atrophic.
  - (d) Sporadic.

In this modified classification, the cardiac fibrosis is not included under 'cirrhosis' as the regenerated areas show no loss of lobular pattern; cholangiolotic or cholangiotoxic variety of biliary sclerosis (Rossle, 1930) is omitted, as its existence as a separate entity is not accepted (*vide* Appendix 9,); as it was not rare to find biliary hepatic sclerosis occuring in combination with either toxic or portal cirrhosis or chronic cardiac liver, a *cirrhosis mixtes* is included under biliary sclerosis.

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EDITORIAL

We may recall that at the last Conference at Nagpur a resolution was passed calling attention to the inadequate fees paid by insurance companies for medical examination and suggesting an improvement in the rates. The supportors of this resolution put forward a very convincing case. It would appear that the rates of fees paid for insurance examination are from Rs. 12/- to Rs. 16/- if the insurance amount is over Rs.10,000 the maximum being Rs. 16/-. For an insurance of Rs. 10,000 the highest fee is Rs. 10/- and for Rs.5000 it may be Rs.8/- or Rs.5/- or even Rs.4/-. These rates compare very unfavourably with the ordinary fees charged by qualified and reputable doctors, and while the insurance cases are more or less regular the work entailed and the time spent in examination is not commensurate with the rates paid by insurance companies. Some of the insurance companies are extremely exacting in the requirements and the responsibility that devolves on the medical officer is one of great importance. Proponents are very often difficult in their attitude and often take up a full hour of the doctor's time. Nor is this all, for several insurance agents demand commission from the doctor for the cases they bring and others take their cases elsewhere if the doctor does not oblige by passing them, whether in the opinion of the latter they are suitable for insurance or not. If the doctor is not actually required to decide whether a case is suitable or not, it is his duty to record the facts as to the condition of health of the proponent. The level of fees offers little incentive for meticulous and painstaking medical examination and human nature being what it is, we are not surprised if on occasions insurance companies have cause for complaint against the medical officer. At the same time, the remedy does not lie in lowering the level of fees but surely in raising it. Our enquiries elicited a reply from a particular insurance company to the effect that since 1901 the mortality rate in India has increased so strikingly as to threaten the position of life insurance companies in this country. To our mind that is a reason for ensuring greater efficiency in the medical examination of people wanting insurance and therefore a reason for offering more attractive terms to medical examiners. As we know, Indian life insurance companies in particular have to face very keen competitions and to make way in the face of many difficulties, we would suggest to them, however, that they can afford to follow a policy of low fees and low efficiency rather than a policy of better fees and greater efficiency in the medical examination of those desirous of insuring their lives. We do not suggest that the scale of fees should be such as to fetter development of these companies, indeed it is to the interest of medical men to encourage their development. But we do think when regard is had to the remuneration of insurance agents that insurance doctors are comparatively poorly remunerated and that a better adjustment is called for. Indeed we feel sure there

are economies in other directions which may be practised with advantage and which would allow for insurance doctors to be given a more adequate remuneration than obtains at present.

* * * *

To Carlo Forlanini, an Italian physician, goes the credit of initiating the surgical treatment of pulmonary phthisis. It was he who introduced artificial pneumothorax as a curative method of treatment. To the Institute bearing his name, established in Rome for the treatment of lung tuberculosis, again goes the credit of introducing a simpler form of thoracoplasty. Based on a careful study of the physiological movements of the normal chest and the altered movements of the diseased chest, Prof. Monaldi and others came to the conclusion that the maximum movements of the chest are mainly along certain 'dominant lines'—two vertical regulated by the diaphragm below, and by the first rib and the muscles of the upper thoracic opening above,—the other two by movements of the ribs and by the intercostal muscles. The maximum movement is developed by a physiobiological cause, on an oblique line which runs from the first costal arch near the parasternal line obliquely downward and lateralward to the seventh rib between the middle and posterior axillary lines'. The actual technique as practised by Ascoli in the surgical clinic in the Carlo Forlanini Institute, consists in paralysing the diaphragm by phrenic exairesis, and then removing under local anaesthesia whole of the first rib, and portions of the second to the seventh ribs in decreasing length. The removal of ribs is carried on in two stages, inferior thoracoplasty of fourth to seventh ribs being done earlier. This operation is less extensive, and easier in technique than the usual paravertebral one. It is also claimed to have very little operative mortality. Some reports published in this issue by one of our workers there go to prove the efficacy of this new method. By a more careful and portracted, statistical and biological study if it is found not to be wanting in the value claimed for it, then Professors Monaldi and Morelli have to be congratulated on the great advance they have achieved in the surgical treatment of pulmonary tuberculosis.

XIII ALL-INDIA MEDICAL CONFERENCE
1936

The XIII All-India Medical Conference will be held at Karachi on 26th, 27th & 28th December, 1936. Subjects concerning the vital interest to the medical profession in India, will be discussed in the Conference. Scientific Section of the Conference and the Exhibition will no doubt afford every medical man a good opportunity to know the advance made in this country in medical science. In order to make this Conference thoroughly representative of the medical profession of India it is requested that all members of the profession should join the Conference and take part in the deliberations.

MODERN THERAPY IN GENERAL PRACTICE

TREATMENT OF IRITIS ON AETIOLOGICAL BASIS

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The treatment of iritis or iridocyclitis is of considerable importance, for any careless management may result in changes of serious consequences so far as vision is concerned. Since rational treatment depends very largely upon aetiology, therefore both of them are considered here.

The old method which is still in vogue in some places in this country of depending upon application of atropine in the affected eye and a mixture containing hydrarg and iodide internally for iritis is being fast replaced by proper investigations into the aetiology of the cases in all eye clinics.

We have not considered here the iritis found in association with ulcers or perforations of the cornea or as part of purulent panophthalmitis, but have confined ourselves to a consideration of the large group wherein the causative agent is carried to the eye through the blood stream. Here we find two general types one resulting from specific infections such as syphilis, tuberculosis, leprosy etc. and the other comprising cases of unknown aetiological factor which presents a non-descript, non-specific clinical picture. Let us first consider the former group.

Syphilis: Since the time of Jonathan Hutchinson, who is one of the pioneers to recognise the importance of aetiological factor in the ocular inflammations, syphilis is regarded as mainly responsible for primary iritis by the British School till the time of the Great War, the percentage as given by different authorities varying from 60 to 80.

Advance in our knowledge of syphilis and the recognition of other aetiological factors in iritis have considerably altered our views regarding p. c. of incidence and most authorities agree that syphilis is not responsible for more than 20 to 25% of iritis. Recent analysis of data published by Gifford in 1931 from 118 cases shows that only 16·9 per cent. are due to syphilis. A large majority of cases occurs during the acute secondary stage. There is no special clinical distinction in the iris changes from other causes but invariably other evidences of recognisable signs of secondary stage would be found elsewhere in the body as pointed out by Moore. There is a second group of cases which are the result of faulty treatment. They are either cases of irido "rezidiv" reaction or a Heixheimer reaction with involvement of the iris. The former reaction is due to the interruption of an incomplete course of therapy since the iris or for the matter of fact the uveal tract like the central nervous system is slow to develop natural immunity. The latter are due to the vigorous push of the arsenicals in a case of well established untreated syphilis in early stages, the reaction is set up by the toxins liberated from a large number of spirochaetes killed. These reactions are not uncommon in this country specially the former. The third and the last group comprises the case of late syphilitic iritis which are not easy to diagnose unless associated with typical gumma. Serologic tests for blood is usually negative at this stage and one may have to dfferentiate the cases of iritis due to other causes in syphilitic patients.

So we find that there is no clear cut picture of syphilitic iritis and in investigating a case of

syphilitic iritis one should not put too much reliance on serologic test alone for instances are not rare of iritis of non-syphilitic origin in Wassermann reaction positive cases.

The patients with iritis or iridocyclitis due to syphilis as a rule respond favourably under anti-syphilitic treatment. But one should remember that antisyphilitic treatment can cure patients with iritis of non-syphilitic origin in not a very negligible percentage.

Apart from local treatment, the usual course that is adopted once the diagnosis is made is the antisyphilitic treatment. Bismuth, arsenicals and iodides are given but some prefer mercury and arsenicals besides iodides. The combined treatment is essential. If simply arsenicals are used then chances of relapses of iritis and appearance of plegias are favoured. In fact combined treatment has curtailed the plegias enormously in this country: It has recently been reported from Russia, that in one of the hospitals, the results of fifteen years have convinced the authorities that the use of mercury, bismuth, arsenicals and iodides according to the order in which they are mentioned gave very satisfactory results in ocular syphilis, there being no relapses. The difficulties in this country is not only that the patients would not complete the course of treatment but cases could not be followed up for a long time for want of co-operation on their part, to judge the effect of treatment or to prevent relapses.

Tuberculosis: There are two types of iritis, one is associated with the appearance of nodules in the iris in young patients and is very rare. These nodules are formed by the round cells infiltration around tubercle bacilli. The other type is either due to the action of tubercular toxin or is an allergic reaction. This latter type is not uncommon in Europe and America. It is worth while to mention here that ocular tuberculosis is rarely seen in manifestly tuberculous patients as has been proved from repeated observations in tuberculosis hospitals. Lung tuberculosis is extremely common in our country, but the diagnosis of tubercular iritis is equally rare though is is mostly done here on negative findings. Under the circumstances one cannot say without hesitation that the second type of tuberculous iritis is very rare. Moreover post-mortem findings of the hospitals and radiological examination of chest in different clinics both show evidences of some sort of focus of old tuberculosis in the lungs, pleura or glands of the hilum. This supports the observations of Urbanek who collected 500 cases of ocular disease which according to him were of tubercular origin and responded to specific treatment but did not show clinical evidence of general tuberculosis though careful expert clinical and x-ray examination demonstrated healed foci. Lowenstein has propounded the view basing on blood culture, that trivial foci are capable of breaking down and freeing into the circulation dead or living bacilli in clinically healthy people, which may select the ocular tissues and produce reactions. Lowenstein has further shown by his investigations that bacilli can circulate in the blood in healthy people and that bacillaemia may run its course without any symptom or after effect and specific manifestations in lungs can scarcely be proved. Meller (1932) successfully isolated the tubercle bacilli by culture from the tissues of a chronic uveitis by following Lowenstein's method. All these facts taken together and the frequency of iridocyclitis not responding to treatment gives us evidence of the existence of tubercular iritis unassociated with nodules being not rare as we presume. Unfortunately tuberculin test is not only always infallible but is attended with dangers. One cannot always rely on Mantoux test nor on Verne's test. These reactions depend on the extraordinary sensitiveness to minute amounts of tuberculin. The older tuberculins contained either whole bacillus or extracts of it which were not free from unspecific elements and Toenissen introduced his recent preparation called Tebeprotein which contain the active principle of tuberculin which was first demonstrated to be protein in nature but later on found to be a dialysable substance which could be separated from the protein carrier without losing its specific active reaction. It has been given trial by many and Urbanek found it to be highly satisfactory. Its advantage over old and new tuberculin are that its dose can be graduated more carefully.

Urbanek found Tebeprotein very valuable for diagnosis by skin test in which it is harmless instead of by the usual subcutaneous method (Mantoux's Tebeprotein test).

In the treatment of tubercular iritis of different

varieties, tuberculin has been used successfully for a long time. Since the introduction of Tebeprotein and the results of its effect in ocular tuberculosis as found by Urbanek, this preparation is becoming popular in different European clinics. Reports indicate that it is one of the best available product in the market. A general outline of the scheme of treatment as detailed by Urbanek will not be out of place here. The course of treatment is started usually eight days after the diagnostic test and it is advisable to put the patient to bed for a day before commencing the treatment in order to watch the temperature. A day of similar rest is advised after the first injection if the patient showed abnormal reaction. Each successive dose is increased by one half the preceding one after an interval of 2 or 3 days, the initial dose being the highest dilution to which the patient gives a positive reaction in diagnostic test for example if the initial dose was 1/10,000 mg.; the second dose 1·5/10,000 mg.; third 2·2/10,000 mg.; fourth 3·3/10,000 mg.; fifth 5/10,000 mg.; sixth 7·5/10,000 mg. and seventh 10/10,000 mg. Then the next dilution is given and the free interval is increased to three days, when the dose is increased to 1/1000 mg. it is advisable to increase the free interval to 4 to 6 days. The maximum dose generally used is up to 1/10 mg. The object of the treatment is to desensitize the patient completely and therefore it is recommended that the final dose should be given regularly over a long period once a fortnight.

Leprosy: In this country leprosy is quite common and seldom people get themselves treated at the early stage therefore there is every chance of the infected person to develop iritis later on. When such is the position one should not overlook to consider leprosy in the aetiology of iritis here. Rogers and Muir report that the ocular affection does not exceed 10% whereas Bhaduri has shown the fallacy underlying such percentage. In his series the percentage was about 30 nearly all of whom having had iritis. Insiduous onset, slow progress without affecting the vision at the first stage are the chief causes of its non-recognition at the beginning. It is when the body resistance is lowered and lepra reaction sets in, that the attention is drawn to the eye condition. These reactionary phase in leprosy depends on the rate at which the bacilli multiply and the cell bursts and it varies inversely with the resistance of the patient. Naturally as a result of repeated lepra reactions the eye suffers most being highly sensitive to infections which ultimately make the eye functionally useless even if later on the resisting capacity of the body against infection is regained under treatment. The best treatment of iritis in leprosy is to prevent its occurrence by controlling the leprosy cases from the very beginning of infection. The next best would be to prevent the occurrence of lepra action in an affected individual otherwise no treatment so far known can prevent the downward progress resulting in blindness unless the patient dies early. One point that cannot be too much elaphasised in the control of leprosy iritis is the fact that chaulmoogra preparations or any other drug which provoke lepra reactions should be stopped in the presence of inflammatory iritic reaction even if there be no other signs of lepra reaction. Again drugs like Pot. Iodide which set up reaction should not be given during the reactionary phase. Rest, elimination with saline purgatives and alkalies are of use. Then Pot. Antimony Tartarate should be recommended intravenously in 0·02 to 0·04 gm. twice or thrice a week, dose to be regulated according to the age of the patient.

Gonorrhoea: The role of gonococcal infection in the causation of primary iritis was early recognised but its importance was not realised till the term "rheumatism" was fully exploded. Gonorrhoeal iritis is characterised by repeated recurrences like the types due to other focal infections. It responds to salicylates and shows slight adhesion near the pupillary margin with the lens. These synechia are easily broken under the effect of mydriatics. The first attack may be of a mild nature synchronising with the appearance of arthritis. It should be borne in mind that attack of great severity running a long chronic course may appear after many years because some anaphylactic element is at work sensitising the iris to the action of the toxin. Hence a long course of vaccine treatment is to be recommended in order to prevent such relapses. It would not be out of place here to mention the observation of Pelouze on focal infective prostatitis. He has found prostatitis quite frequent, about 35% in cases above 35 years of age in his series and only 28% are due to gonococci whilst 62% are due to other infections. It would be worth while to note this fact whilst treating cases of gonorrhoeal iritis.

Non-descript group: This includes the large majority of cases of iritis running a chronic course and having frequent relapses and the treatment presents great difficulties as the aetiology has not yet been properly solved. The European School labels most of them as tubercular in origin whereas the British School regards focal sepsis as the essential aetiologic factor and the American School considers both factors equally prevalent.

On the one hand the advancement of the technique in the detection of tubercle from the blood, the conception of allergic reaction having some rational basis on experimental foundation, improved diagnostic test of tubercular infection and on the other hand results of removal of septic foci from the teeth, the tonsils, the nasal sinuses, the alimentary canal, the prostate, the cervix uteri, the urinary tract causing the cure of iritis in a number of cases, the experimental studies of Rosenow and others on animals with various strains of strepto, staphylo and pneumococci with the elaboration of the theory of selective localisation and the histologic researches of V. Szily on the effect of protein injections in animals, may have made material progress towards the ultimate solution of the problem but still the uncertainty of the course to be adopted in each remains a problem.

In Europe and America, the economic condition of the average people, the effecient organisation of the hospitals and the great faith of the average patient on the medical science might give one an opportunity to search for the cause in an elaborate scale in this group of cases of iritis, performing various mutilating surgical operations to remove foci of infections but in this country, the extreme poverty of the mass, the dread of surgical interference, insufficient hospital accommodation etc., give one very little chance to complete the course of treatment.

In conclusion it may be pointed out that although the problem of treating these cases still remains uncertain there being no clear cut course to follow still with discriminating caution one may give a trial to tuberculin therapy or protein shock or deal with septic foci after ascertaining the aetiology.

CURRENT MEDICAL LITERATURE

MEDICINE

Chronic Constrictive Pericarditis—Electrocardiographic and Clinical Studies

CUSHING AND FEILD (*Amer. Journ. of Med. Sci.* Sept. 1936, page 329) report on the electrocardiographic and clinical studies of 11 cases of adhesive mediastinopericarditis in all of whom pericardectomy was done. The following are noted to be the electrocardiographic features common to all the cases:—(1) Q-R-S complex of low voltage, (2) slowing of the Q-R-S in all leads, (3) T waves of low amplitude, either positive or negative and (4) P waves of normal voltage. Change of position did not appreciably affect the electrical axis in 7 cases though it produced only a slight change in 3 cases. Following pericardectomy Q-R-S voltage increased in 4 out of 7 cases. Electrocardiographic changes noted during the actual process of operation were ventricular extrasystole in 3 out of 4 cases, slight deviation of S-T interval in the 1st and 2nd leads in 2 cases but these signs disappeared after the operation was finished.

Cholesteræmia in Normal and Diabetic Indian Subjects

BOSE AND DE (*Ind. Jour. Med. Research*, October, 1936, page 487) observe that the average cholesterol content of the plasma in 100 normal healthy Indians is 140 mg. per cent., the range of variations being 120 mg. per cent. and that race *per se* does not affect much this cholesterol value. They further observe that the cholesterol value does not bear any relation to the state of hyperglycæmia; cases have been noted with markedly high cholesterol value showing only moderate hyperglycaemia as also the cases with extreme hyperglycaemia showing only normal cholesterol content. Of the 80 cases of diabetes studied by them 33 (42·2%) had complications in some form or other and 85% of these complicated cases had hypercholesteraemia. Arteriosclerosis was also found to be quite frequent in cases with high cholesterol content. The authors' observations show that hypercholesteraemia is the exciting factor in the causation of arteriosclerosis, hyperglycaemia being the predisposing factor and that "the degree of hypercholesteraemia is a more reliable index of the severity of the diabetic condition than any one of the other factors including hyperglycaemia."

Vascular Physiology and Clinical Medicine

LANDIS (*Annals of Int. Med.*, September, 1936, page 290) by combining available clinical and physiological data summarises in a tabular form (table given below) the factors concerned in the pathogenesis of oedema. He deals with the factors under two heads *viz.*, primary and contributory. Primary factors are those which acting singly can produce clinical oedema whereas the contributory factors do not themselves produce oedema but modify the severity or distribution of oedema produced by one of the primary causes.

FACTORS FAVORING OEDEMA FORMATION	CLINICAL EXAMPLES
A. Primary:	
1. Elevated capillary pressure.	1. (a) External pressure on veins. (b) Thrombophlebitis. (c) Cardiac oedema with venous congestion.
2. Lowered colloid osmotic pressure.	2. (a, Nutritional oedema. (b) Nephrotic oedema. (c) Cardiac oedema, late stages with malnutrition.
3. Damage to capillary wall.	3. (a) Inflammatory oedema. (b) Nephritic oedema. (c) Cardiac oedema (?), chronic anoxemia.
4. Lymphatic obstruction.	4. (a) Lymphoedema. (b) Cardiac oedema with venous congestion.
B. Contributory:	
5. Low tissue pressure.	5. Oedema of periorbital tissues and genitalia
6. High salt intake.	6. Increases oedema if water is available.
7. High fluid intake.	7. Increases oedema if salt is available
8. Warm environment.	8. (a) Heat oedema. (b) Increases all types of oedema
9. Disturbed innervation.	9. (a) Tropho-oedema. (b) Unilateral oedema in hemiplegia.

Glucose Tolerance Curve As a Diagnostic Aid in Jaundice

JACOBI (*Surg. Gynec and Obstet.*, September, 1936, page 292) reports his observations on the characteristic glucose tolerance curves obtained in patients suffering from jaundice of toxic, obstructive and intrinsic hepatic groups and observes that these curves will be efficient diagnostic guides. In toxic jaundice the curves are two distinct types—(1) flat type indicating only a slight rise in blood-sugar found in cases with high icteric index and (2) a type of curve showing a low fasting blood-sugar followed by an early high rise and subsequent fall to normal or fasting level at the end of 2 hour period, this type being found in cases with icteric index below 40. In obstructive jaundice the curve is of a gradually ascending type the blood-sugar level not coming down to the fasting level as in the previous group. Jaundice of intrinsic hepatic group shows the type of curve similar to that of the obstructive group. The author observes that other factors both clinical and laboratory help materially in clarifying the situation.

Role of Pituitary in Carbohydrate Metabolism

SALITOWNA (*Polska Gazeta Lekraska.*, July 26, 1936, page 597) reports the case of a woman aged 42 who suffered from diabetes and symptoms of acromegaly with the following peculiaritis. She developed diabetes several years after the appearance of acromegalic symptoms, she was resistant to insulin and there was a tendency to acidosis and also to water retention under the influence of insulin. With roentgen rays the patient's general condition improved, her resistance to insulin was reduced and the signs of acromegaly also diminished.

Benzedrine Sulphate and its Value in Spasm of the Gastro-intestinal Tract

MYERSON AND RITVO (*Jour. Amer. Med. Associ.*, July, 1936, page 24) observe that the drug when given orally in a dose of 30 mg. diminishes or abolishes spasm of the intestinal tract whether it is due to (1) worry, or any other psychological factor or (2) organic disease such as ulcer, cancer etc. or (3) reflex from renal colic, tabes etc. The effect of the drug starts in 10 minutes and reaches its maximum in ½ hour. They further note that peristaltic activity remains unaffected. No severe reactions were noted after its use but in 2% cases slight chilliness, flushing, diarrhoea and general malaise were observed. As it also causes a moderate rise of blood pressure it should be given with caution in heart cases. The drug is helpful in the roentgen study of the gastrointestinal tract, in making differential diagnosis between organic and functional spasms and in giving better visualization of organic lesions.

Glucose Per Rectum

CORKIL (*Med. Jour. of Australia*, June, 1936, page 809) observed that glucose when given per rectum in experimental animals is not absorbed as the blood returning form this portion of the bowel failed to show its presence but glucose is rapidly absorbed when injected into the small intestine. Glucose given at the rate of 30 gm. per hour through the rectum in man by continuous drip method could not show any rise in the blood sugar level. Further patients suffering from starvation ketosis yielded quickly to 10 gms. of glucose per month but the ketosis persisted when 30 gms. of glucose was administered per rectum. The author contends that glucose is not absorbed from the human rectum and is of no value when used rectally.

Acetarson for Vincent's Angina

MAXWELL (*New York State Jour. of Med.*, June, 1936, page 874) reports on the successful treatment of Vincent's angina (infection of the gums and fauces by Vincent's organisms) with acetarsone. The gums are massaged with a thick paste made out of acetarson and water or glycerin. The drug is also given internally in tablet from (0·25 gm., 3 or 4 times daily for an adult). The author notes that the result is so effective that the patient can eat in 24 hours' time without difficulty.

Injections of Histamine for Rheumatism

WEISSENBACH AND PERLES (*Jour. Amer. Med. Associ.*, September 5, 1936, page 803) at the meeting of the Societe medical des hopitaux observed that they got excellent results with intradermal injection of histamine in 41 patients suffering from all types of acute but especially of chronic rheumatism. A

series of two to ten injections each containing 0·25 to 0·5 mg. of histamine with 0·5 mg. of a local anaesthetic given every day or every other day is necessary. The relief of pain is almost immediate. The treatment is successful in 85% of the cases in the first week.

Pneumoperitoneum in Intestinal Tuberculosis

REY AND HIS ASSOCIATES (*Prensa Medical Argentina*, July, 1936, page 1583) report on the satisfactory results obtained with pneumoperitoneum in 15 cases of intestinal tuberculosis secondary to pulmonary tuberculosis. The treatment produces a quick symptomatic relief of diarrhoea, pain, fever and other associated symptoms of dyspepsia and to be effective it must be started very early *viz.* as soon as it is suspected. Pneumoperitoneum should not be done in cases who had previous pneumothorax.

SURGERY

Primary Carcinoma of the Gall-bladder

SAVARESE (*Arch. Ital., di Chir.*, May, 1936, page 297) observes that primary carcinoma of the gall-bladder is not so uncommon as is generally supposed. It is more frequent in woman than in man in proportion of 5 to 1. The average age incidence is between 57 and 60 but cases have been recorded in young adults and even in childhood. The tumor macroscopically may be either villous or infiltrating or gelatinous in form and microscopically a cylindrical epithelioma or a diffuse carcinoma. Three distinct stages characterize the course of the disease *viz.* the first stage characterized by pain and dyspepsia, the second having the presence of a tumor and symptoms caused by pressure of such tumor and the third having the diffusion of the new growth. The author observes that jaundice is not an early symptom neither is it constant as was found only in 60% of his series. Preoperative diagnosis is almost impossible. The prognosis is always bad, death taking place within 6 months of the appearance of jaundice. Operative mortality is 50% and even after successful operation death takes place within one to four years.

Cholecystography

JENKINSON (*Jour. Amer. Med. Associ.*, September 5, 1936, page 755) in an address before the Radiological Section of the 84th Annual Session of the American Medical Association at Kansas City observed that 73% of the patients with symptoms referable to the gall-bladder showed a normal functioning gall-bladder, that 8 out of the 20 patients with non-functioning gall-bladders showed a normal response radiographically after medical management and that 5 of the same series of 20 patients gave negative cholecystographic response on two or more occasions even after medical management. The author observes that one negative cholecystographic response was not sufficient indication for immediate surgical intervention even in presence of gall-bladder symptoms. A second radiographic examination after one month preferably with a diet rich in fat during this interval is necessary before one is subjected to any operation.

Life Expectancy and Incidence of Carcinoma of Breast

NATHANSON AND WELCH (*Amer. Journ. of Cancer*, September, 1936, page 40) in reporting the results of their of study on the investigation of the life expectancy in 1565 cases of carcinoma of the breast treated in the Huntington Memorial and Pondvile Hospitals observe that the average length of life from the onset of the disease is 3·5 years in patients treated during the 1912-32, compared with those untreated and that there is nothing in the results to show conclusively that the treatment of the cases has increased significantly the life expectancy in years 1923-32 compared with that of the years 1912-22. The authors further note that males have a slightly better life expectancy, that the susceptibility to cancer of the breast increases with age and that the disease is more malignant in the young and less so in the old.

Surgical Treatment of Essential Hypertension

PENDE (*Paris Med.*, June, 1936, page 509) observe that essential hypertension cases are relieved by section of the left splanchnic nerve which diminishes the function of the suprarenal gland. The nerve is approached by an extraperitoneal subphrenic

route. The author noted 85% improvement in one series of cases. He reports of a case with blood pressure of 320/130 which came down 24 hours after operation to 160/75 and who is doing quite well upto the present time. The author also suggests alcohol injection into the nerve as a modification of the operation.

Intra-Abdominal Torsion of Appendices Epiploicae

FISKE (*Amer. Jour of Med. Sci.*, September, 1936, page 354) reviews the literature on intra-abdominal torsion and infarction of appendices epiploicae and reports 2 more cases in addition to 42 cases already reported and gives the clinical features of all these cases in tabular form. The distinguishing feature of the disease is abdominal pain, usually occuring over the site of the lesion, and localised tenderness, nausea and vomiting being uncommon. The author observes that pre-operative diagnosis is difficult and contends that "in any obscure cause of abdominal pain which is not explained by operative findings an exploration of the appendices epiploicae should be considered".

Roentgen Treatment of Coccygodyna

BAASTRUP (*Strahlentherapie*, June 20, 1936, page 184) reports on the successful treatment of coccygodyna with roentgen rays specially in cases which are refractory to other methods of treatment, *viz.*, hydrotherapy, diathermy, heat treatments, baths faradization, protein shock therapy etc. The author applied usually 300 roentgens but tried different filters and intensities. 15 patients were tried with this therapy and 10 of them are doing well now. 2 had no effect, one had temporary relief, one could not be followed up, and one was operated on for haemorrhoids so that it is doubtful if the roentgen rays did him good. The treatment should be given further trial in men (provided the testes are well covered) and in women after menopause.

Furunculosis of Auditory Canal

FREUND (*Laryngoscope*, June, 1936, page 419) reports on the very successful results with bacteriophage in furunculosis of the auditory canal. Staphylococcus bacteriophage is used for topical application and hypodermic injection. Of the 50 cases so treated only 2% required surgical intervention and the others responded to from 3 to 6 applications, supplemented in most cases by one or two injections of the bacteriophage.

Treatment of Paroxysmal Sneezing

COKE (*Journ. of Laryngol. and Otol.*, August, *viz.*, (1) allergic type, (2) microbic type, and (3) primary vasomotor type. In allergic type definite history of sensitiveness to a particular article and positive skin test may be found. Treatment consists of avoidance of that particular article, specific desensitisation or non-specific desensitisation by such methods as the Dansyz or mixed coliform vaccine. In microbic type if the infection is chronic it may be located in one of the sinuses and treatment of the affected sinuses will do. In the third variety the vasomotor balance in the nose is upset apart from any allergic or microbic factor playing the part of etiology. Most of the symptoms are relieved by a few injections of colosol manganese in 20 minim doses. A course of the Dansyz or mixed coliform vaccine preferably autogenous or a local zinc ionization will cure the disease.

OBSTETRICS AND GYNAECOLOGY

Foetal Heart Tones in Ablatio Placentae

RICHARDSON (*Amer. Jour. of Obst. and Gynec.*, September, 1936, page 429), in reporting in detail 8 cases of ablatio placentae observes that the disease is not always abrupt and stormy in its onset, the pain is not always very severe at the beginning, the ligneous hardness so much emphasized in text-books is present only in 18 to 20% of the cases but the change in the foetal heart tone is present from the very start and is one of the most constant and significant signs. With the separation of the placenta there is a disturbance in the oxygen-carbon dioxide balance of the foetus which reacts to this change firstly by a compensatory phase characterized by acceleration of the heart rate and later on by an asphyxia stage characterized by marked slowing of the rate followed by foetal death, quiet or violent. This response in the heart tones of the foetus is proportional to the area of placental detachment. Taking as basis a normal case with foetal heart of

132 to 140 and placenta completely attached the author notes that separation of one fourth to one-third of the placenta will increase the foetal heart rate to 160 or 170, separation of one-half to 180 or 190 but further separation will bring down the rate to 90 or 70 and foetal death will occur before, at or immediately after complete separation of the placenta, the whole process involving 5 minutes to 5 hours. These observations are based on acute postoperative findings. The close study of the foetal heart tone will be a great aid in the early diagnosis of the condition, prognosis then rests on a sound basis and treatment becomes much facilitated. The statistic of the series given by the author shows that 70% of the foetus were born alive and 30% were still born and 50% are still living.

The Secretion of Milk with Abortion and Pregnancy

SCHULTZE (*Ztrlbl. f. Gyn.*, No. 16, 1936) write that both clinical observations and animal experiments show that the secretion of milk is a sure sign of death of the foetus. The living placenta hinders the formation of milk. In twin pregnancy milk never comes until the birth of the second child or more exactly until after the placenta is separated. An abdominal pregnancy was delivered by abdominal section but the placenta being firmly adherent to the intestines was left alone and in this case the secretion of milk did not set in till the 46th day after the operation when probably the resorption of the placental tissues was complete. It is a recognised phenomenon to animal breeders that a sudden swelling of the udder in a pregnant cow means the death of the foetus. In abortion the presence of milk denotes that it is no longer a case of an "abortus immenens" but of a dead foetus, the removal of which is imperative. The absence of milk on the other hand should not be taken as a sign indicating the presence of a living foetus for the presence of a very small amount of living placenta may hinder milk secretion in spite of the foetus being dead.

Treatment of Puerperal Infections

COLEBROOK AND KENNY (*Lancet*, June 6, 1936, page 1279) report on the treatment of 38 cases of puerperal fever infected by haemolytic streptococci with Protonsil (diaminoazobenze sulphonamede) by oral and intravenous or intramuscular routes. The result was satisfactory in producing a prompt fall of temperature and remissions of symptoms and the mortality was greatly reduced. Three patients who had generalized peritonitis was cured without laparotomy with large doses of the drug. Some of the patients showed mild transient toxic effects of the drug on the tissues of the urinary tract, 3 developing sulphhaemoglobinemia. In cases of infection by organisms other than haemolytic streptococci the drug has very little effect and the authors are unable at this state of their knowledge to say anything as to the nature of the antimicrobic influence of the drug.

The Influence on Labour of Premature Rupture of the Membranes

MOLLER (*Acta Obstet. et Gynec. Scand.*, 1936, 16, 1) in reporting on his investigation of 1000 cases of spontaneous rupture (premature) and 300 cases of artificial rupture of membranes observes that premature spontaneous rupture is more frequent in pluriparas than in primiparas, and in spontaneous rupture of the membranes the course of labour is shorter, the incidence of infection is not higher and if infection develops it is more frequent in cases in which operative interventions are made than in spontaneous deliveries, interference rate, of course, being increased after spontaneous rupture of the membranes and there is no increased tendency to prolapse of the cord. He further observes that the incidence of infection, frequency of operative intervention, the maternal and foetal mortality, the occurrence of post partum complications are more common after artificial than after spontaneous rupture of the membranes. The author contends that artificial rupture should thus be done only when definitely indicated and not as a routine measure to shorten labour.

PATHOLOGY

Experimental Pathology of Renal Hypertension

ARNOTT, KELLAR AND MATTHEW (*Edin. Med. Jour.*, September, 1936, page 135) at a meeting of the Medico-Chirurgical Society of Edinburgh observed that there commenced since Richard Bright a search for the exact relation between renal and cardiovas-

cular disease. There is little doubt that the rise in pressure is produced by generalised hypertonicity of the arterioles and the search is for the connection between damaged kidney and the arteriolar system. Loeb suggested but did not give definite evidence that the elevation of pressure in renal disease may be mediated by autonomic nervous impulses originating in the kidney. The authors carried out the following experiments to explode this possibility. By repeated intravenous injection of sodium oxalate in 13 rabbits nephritis was produced and a highly significant rise in blood pressure was noted in each case, a control series receiving equal amount of normal saline and showing no rise of blood pressure. No hypertension was observed with sodium oxalate in any of the rabbits who had both of their kidneys removed showing thereby that the hypertension was due to renal damage and not to some other effect of sodium oxalate. Rabbits after removal of the right kidney and denervation of the left (isolation of renal tissue from the central nervous system) did not show any alteration in pressure even when sodium oxalate was given but the control animals who had only unilateral nephrectomy showed hypertensive reaction when sodium oxalate was injected. The authors thus conclude that the integrity of the nervous connections of the kidney was essential for the development of the hypertension of oxalate nephritis. As the feature of oxalate nephritis is that of tubular nephritis the authors tried to use a method of producing glomerulonephritis devised by workers in Fahr's laboratory in Hamburg and the results obtained thereof corroborate their previous finding.

Thrombocytes in Acute Miliary Tuberculosis

ARNETH (*Llinische Wochenschrift*, July, 1936, page 964) reports on the thrombocytic picture in 6 cases of acute miliary tuberculosis. The author writes that the normal thrombocytic picture consists of two distinct groups, a left one and a right one. The left group contains large longish forms of platelets and they again are of two types one with and the other without division of granulomere. The right group contains round and oval platelets measuring about 2·5 to 4 microns. The change in miliary tuberculosis is both quantitative and qualitative. The number of platelets are reduced in all cases even below 50,000 per cubic millimeter and this reduction is progressive. There is qualitative change also in the shape of reduction in longish forms and an increase in the roundish forms *i.e.*, a deviation to the right.

The Nonprotein, Urea, and Rest Nitrogen of the Blood during Pregnancy and Puerperium

CADDEN AND FARIS (*Amer. Jour. of Obstet. and Gynec.*, September, 1936, page 429) investigated the nonprotein, urea and rest nitrogen contents of the blood of normal pregnant women during pregnancy, labour, and on the eighth day post partum (163 specimens of blood examined) and noted the following findings:—

1. The non-protein nitrogen during the first 6 months of pregnancy decreases from 30 (normal) to 24 mg. per 100 c.c. of blood and increases steadily to 33 mg. during last four months until one week post partum reaching 26 mg. at term.

2. The urea-nitrogen diminishes during the first 6 months from 14 mg. (normal) to 6 mg remains constant until the 8th or 9th month when it again rises being 7·12 mg. at term and 11 mg. on the eighth day post partum.

3. The rest nitrogen falls during the first 6 months of pregnancy to 18·02 mg. and then increases to 19·18 at term and 21·39 mg. on the eighth day post partum.

4. The urea-nitrogen to non-protein nitrogen ratio is decreased during pregnancy being 0·25 during the 6th or 7th month and 0·27 at term, normal ratio being 0·50.

SYPHILIS AND DERMATOLOGY

Ide Reaction—A New Color Reaction for Syphilis

IDE AND IDE (*Klinische Wochenschrift*, July 4, 1936, page 973) in describing the technic of their new reaction first outline the preparation of the extract of ox heart. Then they prepare four different solutions: (1) a cholesterolized solution (100 c.c. of the ox heart extract with 0·2 gm. of cholesterol), (2) a 5 per cent. acacia-benzoic solution of the ox heart extract, (3) a 1 per cent alcoholic (95 per cent. alcohol) crystal violet solution and (4) a 1 per cent alcoholic solution of azure II. From

these four solutions they prapare the "Ide" antigen by adding to 100 c.c. of the first solution 5 c.c. of the second and 0·6 c.c. each of the third and fourth solutions. A drop of blood (from 0·02 to 0·03 c.c.) is placed on a hollow slide. Before the blood coagulates, one drop (0·05 c.c.) of a 3 per cent. solution of sodium chloride is added and mixed with the blood. A diluted reagent solution is prepared by putting 0·2 c.c. of the Ide antigen into a small tube and adding to this 0·6 c.c. of a 2·5 per cent. solution of sodium chloride and by shaking this mixture from twenty to thirty times. One drop of this diluted reagent is mixed with the drop of blood on the slide and the entire mixture is shaken for three minutes. Immediately after this, the preparation is examined under the microscope with a magnification of 50 diameters. The reaction is positive when microscopy discloses between the blood corpuscles large violet particles. If these particles are absent, the reaction is negative. The authors made this test and control Wassermann tests on 2,350 serums. They obtained a positive Wassermann reaction in 255 cases and a positive Ide reaction in 235 cases. However, if only the absolutely sure cases are considered, 235 positive Wassermann reactions correspond to 229 positive Ide reactions; that is, there are about ninety-seven positive reactions to every 100 positive Wassermann reactions.—(Summary *J. A. M. A.* September 26, 1936, page 1088).

Syphilitic Cystitis

PUGH (*Amer. Med.*, February, 1936) reports five cases of syphilitic cystitis. Symptoms complained of were frequency, urgency, dysuria and haematuria and cystoscopic examination showed a generalised thickening and reddening of the mucous membrane with macules at the base of the bladder and pearly opalescent papules with occasional bullae near the ulcers. All of the cases gave history of syphilis of more than one year's duration, all of them had positive Wassermann reaction, and all were cured with antisyphilitic treatment. The author recommends a Wassermann test to be performed on all doubtful bladder cases.

Syphilis of the Oesophagus

AVERY (*Radiology*, September, 1936, page, 323) reviews the literature on the subject and discusses the factors responsible for the difficulty in establishing and confirming the diagnosis. He reports two cases and observes that though the condition is rare it is not so uncommon as is supposed as many cases go undetected. A history of transitory attacks of mild dysphagia is of greatest importance in diagnosis which will be much facilitated by roentgen study, oesophagoscopy, serologic investigation and biopsy examination. Treatment consists of the following:—antisyphilitic; dilatation and local; and dietetic.

Gonorrheal Arthritis with Artificial Fever

STECHER AND SOLOMON (*Amer. Jour. of Med. Sci.*, October, 1936, page 497) give report of 50 cases of gonorrheal arthritis treated with artificial fever (105-107°F. from 1 to 48 hours) by means of the Kettering hypotherm. Of these 50 cases 26 (54%) were relieved of all joint symptoms, 11 (22%) received benefit while 13% were not helped. The author then described the apparatus and the procedure in detail as also the common complications met with during the course of the treatment.

Sodium Thiosulphate in Treatment of Scabies

KULCHER AND MEININGER (*Arch. of Dermatology and Syphilis*, August, 1936, page 218) report on the successful results obtained in 50 patients with scabies of various degree by using 40% aqueous solution of sodium thiosulphate followed by 4% solution of hydrochloric acid, this interaction precipitating colloidal sulphur on the skin. After soap and water bath and when the body is dry thiosulphate solution is applied all over the body except head and face and 15 minutes later hydrochloric acid solution is applied in the similar way and this method is repeated after one hour. The whole process may be repeated next day and on the following day the patient takes his bath and changes clothes which are sterilised by boiling. This process is simple, effective and economical.

Treatment of Pruritus Ani by Calomel

THAYSEN (*Lancet*, October 3, 1936, page 739) reports on the successful results obtained in pruritus ani by calomel dusting. He advises the anal region to be dusted with finely pulverized calomel both morning and evening after the part is washed with tepid water and bland soap and mopped dry. The

itching soon decreases and subsides completely in 3 week's time. Of the 36 patients so treated 34 are doing perfectly well only a few having one or two relapses which responded quickly to calomel dusting. The author has noted no ill-effects by its use though he forbids its use in cases where pruritus is associated with eczema. The treatment is not effective in diabetic pruritus nor in combined pruritus ani et vulvae nor is it successful in pruritis of other parts of the body.

PEDIATRICS

Recent Work on Whooping Cough

SMITH (*Quarterly Jour. of Med.*, July, 1936) in his review on "The recent work of whooping cough" observes that mortality, morbidity and sequelae make it the most important disease of childhood. The greatest incidence of the disease is before the age of 2 years and the mortality though highest in children under 2 declines from this age onwards. Incubation period is from 2 to 7 days. B. pertussis is the causative organism and there is little evidence that virus infection plays any part. Cough-plate method is successful in 75% of the cases for the culture of the organism and to be successful it should be done very early preferably in the first week and cough must be natural without much mucus. Prophylactic use of vaccine when given early is successful. Convalescent serum given with usual and proper precaution in 20 to 40 c.c. doses in the early catarrhal stage is very satisfactory but when given later is of questionable value. 10 c.c. of convalescent serum given as prophylactic to contacts or during incubation period sometimes aborts an attack or modifies it.

Stone in the Urinary Tract in Children

KRETCHMER (*Amer. Jour. of Diseases of Children*, September, 1936, page 513) reports on the study of 21 children with stones in the urinary tract. The age incidence was from 1 to 12 years; males were affected more than females in proportion of 3 to 1. In 5 out 21 cases stone was present in more than one organ and there were present 6 stones in the kidney; 3 in the ureter; 7 in the bladder; 2 in the kidney and the ureter; 2 in the kidney and the bladder; 1 in the kidney, the ureter and the bladder. Pyelograms showed in cases of stone in the kidney and ureter evidences of hydronephrosis or hydroureter or both and other associated pathological conditions noted were an aberrant artery in the kidney in one case, a diverticulum in the bladder in two cases and a congenital valve in the posterior urethra in another. Symptoms complained of were colicky pain, haematuria, disturbance of urination and passage of stones. Disturbances of urination consisted of frequency in 13 cases, pain on urination in 9, difficulty in urination in 9, incontinence in 6 and burning on urination in 4. Careful and repeated examination of the urine and radiograms will help in the diagnosis. The author remarks that each of the shape of water, milk, lemonade etc. When the tive shadows in the x-ray though many authors are of opinion that cystin stones cannot be radiographically demonstrated. For treatment the child should be encouraged to take large quantities of fluid, in shape of water, milk, lemonade etc. When the stone is large and produces definite obstruction or when there is much haematuria or infection or repeated attacks of colic the operation should be done. He did pyelolithotomy in 5 cases, nephrolithotomy in 1, resection of the kidney in 2, suprapubic lithotomy in 5 and litholapaxy in 5 and he had no deaths and no postoperative complications.

Acute Toxaemia of Burns—Suprarenal Cortex in Treatment

WILLSON, ROWLEY AND GRAY (*Lancet*, June 20, 1936, page 1400) report 2 cases of severe toxaemia after burns in children treated successfully with eucortone—suprarenal cortex extract. In one case the toxaemia appeared 15 hours after injury and in the other 13 hours after. Both the cases complained of vomiting, restlessness, cold extremities, increased rectal temperature, very rapid thready pulse with progressively increasing pulse pressure. Both of them responded to the injection of eucortone given in 1 c.c. doses and repeated every 2 to 4 hours till 100 hours when all toxic symptoms disappeared. The results are very encouraging and the treatment should be given further trial. There is no definite evidence that burns injure the adnenals and the authors note that suprarenal extract acts by increasing the efficiency of the circulatory apparatus.

INTERNATIONAL CONGRESS OF MICROBIOLOGY

At the second International Congress of Microbiology, held in London, more than thirty countries were represented. In his opening address the president, Professor Ledingham, said that the congress was due to the efforts of the Health Section of the League of Nations to reconstitute international scientific meetings, which were interrupted by the World War. They were really a continuation of the congress of hygiene and dermography, the last of which was held at Washington in 1913. But the extraordinary development of bacteriology and microbiology had rendered some subdivision necessary. At the previous congress they worshipped at the shrine of Pasteur. Now they went further back and engraved on their badges Antony van Leeuwhenhock (1632-1723) the Dutch microscopist, who first made a drawing of bacteria.

The congress was divided into eight sections; general biology of micro-organisms; virus diseases in animals and plants; bacteria and fungi; economic bacteriology; medical, veterinary and agricultural zoology and parasitology; serology and immunochemistry; microbiologic chemistry, and specific immunization, chemistry; microbologic chemistry, and specific immunization. The number of papers read reached the extraordinary total of 400.

Viruses

The subject of viruses was discussed for two days. Dr. A. R. Dochez and others from New York described researches showing the presence of a filtrable virus in the upper respiratory tract of persons suffering from the common cold and influenza. They had demonstrated the activity of the virus by experimentally producing similar diseases in chimpanzees and in human volunteers. Not the typical picture of influenza but one more resembling the common cold was produced.

Dr. G. H. Eagles brought forward evidence in favour of a virus cause for rheumatoid arthritis and rheumatic fever. Pericardial and pleural exudates from cases of rheumatic fever and joint fluids and synovial membrane from acute and subacute rheumatoid arthritis yielded suspensions of bodies which, in stained preparation and by darkfield examination, were indistinguishable from bodies demonstrable in similar suspensions from recognized virus infections.

Control of Whooping Cough and Diphtheria by Specific Immunizing Reagents

Dr. W. H. Park described an investigation in New York to determine the prophylactic value of pertussis vaccine. Though the incidence of pertussis was low among unvaccinated children, a marked reduction was produced by vaccination with from 65 to 88 million bacilli. Professor Madsen of Denmark said that figures from an isolated community, such as the Faroe Islands, indicated the value of prophylactic vaccination, especially in decreased severity of the disease. Danish clinicians also agreed that a vaccine used in the first two weeks of the diseases had a benefical effect. Dr. Park said that the fall in the incidence of diphtheria following immunization of the population left no doubt as to its efficacy. He had found alum-precipitated toxoid, preferably in two or three doses, the best antigen. The duration of the immunity appeared to be long and the few reactions encountered were not severe. Dr. R. A. O'Brien of London said that immunization had protected nurses against grave infections when tending severe cases of diphtheria.

Viruses and New Growths

Dr. Peyton Rous of New York suggested that an association of viruses with cells was responsible for some neoplastic diseases. A tumor of the frog and numerous diseases of the domestic fowl had proved to be due to viruses. As to mammals, the wild rabbits of the Middle West of America frequently had skin papillomas caused by a virus.

which in domestic rabbits produced vigorous growths, often metastasizing and on the brink of malignancy. All tumor phenomena could be explained in terms of what was known of viruses, yet it did not follow that the generality of tumors were actually caused by them.

The Microbiology of Canned Foods

Prof. F. W. Tanner of Urbana, Ill., said that refrigeration did not destroy micro-organisms but only inhibited their activities. Foods subjected to quick freezing were perishable and should be kept frozen until ready for preparation for the table, if the development of food poisoning organisms was to be prevented. Some 10 per cent. of canned meat products and 24 per cent. of canned corn and over 50 per cent. of canned pineapple harbored viable micro-organisms. The conditions that allowed them to survive should be studied. For ten years factory-canned food had not caused botulism in America, but home-canned foods continued to take their toll each year.

The Mechanism of Virus Immunity

Prof. J. C. G. Ledingham of London opened the discussion. He said that killed viruses conferred only the most trivial and ephemeral protection, though this might be a subsequent basis for reinforcement by the living virus. Dr. E. W. Schultz of Los Angeles stated that it had been established that the virus of poliomyelitis entered the central nervous system by the olfactory nerve. Serum prophylaxis and vaccines had not been proved to be effective, but recent observations indicated that temporary protection might be afforded by previous treatment of the nasal mucous membrane with chemical agents, which tended to diminish the permeability of the olfactory portal. Dr. G. W. M. Findlay of London said that more than 1,000 persons had been immunized against yellow fever by injections of immune serum and living virus. Serum from immunized horses produced reaction in from 10 to 15 per cent. of cases, but human serum produced no case of yellow fever. —(*J. A. M. A.*, September 19, 1936, page 976).

PRESIDENTIAL ADDRESS, 6TH SESSION OF THE MEDICAL COUNCIL OF INDIA

MAJOR GENERAL SIR CUTHBERT SPRAWSON

Gentlemen,

Your President has not hitherto addressed you on Council matters as a whole. In the earlier days of our constitution our progress was necessarily slow and perhaps laborious; but we have now reached a stage when with more rapid development in the present and the prospect of changes in the future it becomes advisable that the President should rehearse from time to time our activities and explain what your Executive Committee have done and are doing. Your Executive Committee will be well acquainted with the matters on which I shall comment, and a study of their proceedings, especially those of their meeting last August, will inform Council Members of their activities; but our Council meets seldom, and it will, I believe, be advantageous if I review briefly for the benefit of Members some matters of immediate interest.

Before I go further I must express a deep personal regret which I know is shared by all of you, at the death of Sir Fazal-i-Husain. Sir Fazli had much to do with the formation of this Council, for he was the Member of the Viceroy's Council in charge of the Department of Education and Health at the time of the passing of the Medical Council Act, and many of you here will recollect his address at the opening of the first meeting of this Council in March, 1934. His death has cut short a career that was about to offer still further opportunities to his administrative ability.

You will be aware that since the last meeting of our Council the General Medical Council of the United Kingdom have recognised for registration the medical degrees of the Universities of Bombay, Lucknow, Madras and Patna and that in the case of the first three Universities this recognition has retrospective effect from February 1930, so that there is now no break in the continuity of the recognition they formerly received. The date from which the degrees of Patna University may be recognised is now the subject of separate consideration by your Executive Committee. You will have noted that the General Medical Council have accepted for recognition all those degrees that we have ourselves hitherto approved. It will be for you to consider the sufficiency of the degrees of some of the other Universities of British India during the present session.

Since the purpose of this Council under the Medical Act of 1933 is to establish a minimum standard of higher qualifications in medicine, it follows that we are deeply interested in the medical curriculum and it is for that reason that our Act gives us powers to require from time to time information about courses of study from every medical institution in British India that grants a qualification included in our Schedules. The Council have already published their Recommendations on Courses of Study; but you will be aware that the work of the medical student has been the subject of recent discussion in several countries and that it is necessary for us to reconsider the curriculum and consequently our recommendations thereon from time to time and to adopt our advice to improved knowledge and experience. It is not the object of our Council to implant a rigidity in the courses nor even to suggest an entire uniformity in the methods of different Universities, but with a rise in standards and improvements in knowledge and in opportunities it follows that our Recommendations on Courses of Study require revision. The Council last year instructed your Executive Committee to carry out such a revision and your Committee have now done so and have sent their revised draft recommendations to the Universities for their opinions and remarks. The Inspectors of the Council after completion of their inspections at the several Universities have submitted a general report on both Courses of Instruction and Examination of the Universities as a whole, and a copy of this report, with the remarks of the Executive Committee thereon has been supplied to each member of the Council. These reports have also been sent to the Universities with the revised Recommendations on Courses and when their observations are received your Committee will place the matter before you.

Apart from the details of instruction that your Inspectors have to investigate it is necessary for them also to see that the number of students attending classes is not too great for the capacity of the teachers or rooms or material provided for their instruction. Overcrowding may be estimated in various ways and no definite standards exist beyond which it may be said that the number of students should not rise. Your Executive Committee have however adopted one such criterion and have recommended that during his period of medical and surgical inpatient work each student should be continuously in charge of not less than five beds. An enquiry on this point from the Universities has shown that already the majority of Universities are able to comply with this condition: those who fall short of it have been requested to attain this standard.

Another detail of instruction which has exercised your Committee is the fact that many, if not most, of our Universities do not take sufficient advantage of the great teaching advantages afforded them by a large hospital out-patient attendance. The teaching is sometimes too confined to the wards.

Your Executive Committee have also been considering the fact that the Universities of Bombay and of the Punjab do not prescribe an age-limit for admission to the Medical College nor a limit before which a student cannot obtain qualification. A case was brought to my notice where a young man actually obtained degrees of M.B., B.S. and registered them with the Provincial Medical Council before he had reached the age of 21 years. The necessity of preventing such a possibility in future will be brought to the notice of those concerned.

A further question which your Committee have under consideration is the conditions in which at certain Universities holders of an L.M.P. diploma are admitted to further courses and allowed to sit for examination for an M.B., B.S. degree.

A consideration of the work of the Council in the first 2½ years of its existence and of the effects that this work has produced already by improve-

ments in the Courses and in details of instruction and examination in several points in our Recommendations should bring satisfaction to members of this Council. The recognition that has been accorded to medical degrees by the General Medical Council is also a result of the work of this Council and our Inspectors. Such changes we may regard as direct good resulting from the establishment of this Council: but I am still more impressed when I contemplate the amount of indirect benefit that may truly be said to have resulted from the reports of our Inspectors. There is no doubt that the pointing out of defects by our Inspectors has in several instances brought authorities, both Government and private bodies. who are responsible for the main tenance of medical colleges and their attached hospitals, to make improvements costing in some cases large sums of money in order to comply with the recommendations of our Inspectors. I need only instance the changes that have occurred or are occuring in colleges and hospitals in Bombay, in Rangoon and in Calcutta in order to illustrate my meaning and in particular the increase in the staff and the expenditure of 16 lakhs of rupees on hospital buildings in Vizagapatam. I consider that the Council have reason to be well satisfied with their Inspectors who have made these reports and have conscientiously performed what must sometimes be a difficult task. Further I consider we may be satisfied with the response that Universities on the whole have made to our recommendations and to the criticism of our Inspectors. Criticism are not always welcome affairs; but speaking generally the remarks of our Inspectors have been well received and suitable responses made by the University.

In accordance with Section 13 of the Medical Act it is our duty now to enter into negotiations with our countries, especially with those whose degrees are already our Second Schedule, so that we shall be able by September, 1937 to recommend to the Governor General in Council what qualifications should in future be included in our Second Schedule. These negotiations have been commenced by our Secretary and your Executive Committee is informed of them. To some countries, principally those in which Indian Nationals reside in appreciable numbers, but which do not possess medical qualifications of their own, we are making proposal for their recognition of those degrees that are on our First Schedule.

You will find a list of these countries in the minutes of the meeting of the Executive Committee held in last August of which you already have copies. With most of these countries correspondence is still in progress and you will be asked at a subsequent meeting to consider the recommendations of your Executive Committee thereon. The usual tone of response from other parts to the British Empire is that those countries are prepared to recognise those of our degrees that receive also the recognition of the General Medical Council, but not to accept other degrees simply because they are on our first Schedule. This response is not unnatural and ned not cause us any dissatisfaction or diminish regard for our Council. The Medical Council of India is yet young and has to make its reputation abroad as it has already done in this country. We have found also that the General Medical Council is ready to help us and to understand our difficulties and our relationships with that older body continue to be happy.

In accordance with the principles of reciprocity the General Medical Council have sent for our consideration the latest series of reports by their Inspectors on the final examinations of the licensing bodies in the United Kingdom. Your Executive Committee have considered these reports and have drawn the attention of the General Medical Council to various instances where their recommendations do not appear to be observed by licensing bodies, particularly the cases of the Apothecaries Society of London and the Apothecaries Hall of Dublin.

Quite apart from reciprocity the question of the registration or recognition of foreign degrees in India is under consideration by your Committee. The point was raised by the Bombay Medical Council in connection with the application for registration by an Indian National possessing an American degree. The Provincial Medical Councils have been circularised as to their opinion on and their present practice in this matter, and when their replies are all received the question will come before you with the recommendation of your Committee.

These foreign relationships have further implications than may be at first apparent. We are most nearly concerned with French and Portuguese India, because they are parts of this peninsula, and we find there that whatever qualifications a man may possess he cannot practise medicine in those areas

unless he be a national of the country concerned, whereas their nationals may practise without restriction in British India. Other countries have adopted a similar protection based not on qualification, but on nationality, and since this is not a question of medical standards this Council, however interested, cannot pursue it. I am therefore approaching the Government of India to deal with this difficulty.

Since the last meeting of this Council two new provinces of India have come into being. Each will be entitled to representation on the Council by a nominated member, and Orissa, which has established a medical register, by an elected representative of the registered graduates. So far members have been nominated by the Governments of the two Provinces,—Lt.-Col. G. Verghese representing the Government of Orissa, and Lt.-Col. B. F. Eminson that of Sind, and we welcome them both to our meeting to-day.

Something in what I have already said foreshadows the changes that will occur in this Council after its first four years. Other changes will be called upon to appoint a Secretary from November, 1937 and to elect a President in March, 1938.

I conclude by remarking on the unremitting interest that all members of your Executive Committee have shown in the matters that come before them and on their unselfish zeal in travelling far to give to your Council's questions the great advantage of their expert advice on all that pertains to Medical Education.

(Delivered at New Delhi on the 5th November, 1936).

MEDICAL NOTES AND NEWS

MEDICAL RESEARCH WORKERS' CONFERENCE

The Fourteenth Conference of the Medical Research Workers' Conference will be held in the Library of the School of Tropical Medicine, Calcutta, from the 30th November to the 5th December, 1936, with Major-General Sir Cuthbert Sprawson, Director-General, Indian Medical Service, in the Chair. Colonel A. J. H. Russell, I.M.S., Public Health Commissioner with the Government of India, will act as Secretary to the Conference.

The Scientific Advisory Board of the Indian Research Fund Association will also meet at Calcutta at the same time.

There will be a meeting of the Scientific Advisory Board for a preliminary discussion before the proceedings of the Medical Research Workers' Conference actually commence. The Conference itself will be opened by the Chairman with an address, and this will be followed by a general discussion in which the research workers present will each give details of research activities during the preceding year. Each item of research work will be discussed and the officer in charge of the work will make his proposals for the next year. The proposals will then be considered and recommendations made to the Scientific Advisory Board whether and how far the suggestions for the following year be carried out.

In order to ensure that each item of research work receives close and adequate consideration, the Conference will set up a number of advisory committees such dealing with problems appertaining to a particular subject. Thus there will be advisory committee on leprosy, cholera, maternity and child welfare, malaria, plague, nutrition and rabies. It has not yet been decided if there should be an advisory committee on tuberculosis, but if facilities of discussion so require, a committee will also be set up on that subject.

The recommendations of the Conference will next be considered by the Scientific Advisory Board

of the Indian Research Fund Association, which will meet for the purpose on the 5th December, before the workers assembled for the Conference disperse, and the Board will in its turn make its recommendations to the Governing Body of the Indian Research Fund Association which meets in Delhi early in March next.

The Conference will also discuss a series of resolutions dealing with the public health problems of India. These resolutions, too, will be considered by the Scientific Advisory Board of the Indian Research Fund Association, and passed on to its Governing Body with its recommendations. The Governing Body will again consider the matter, and such of the resolutions as they approve will next be forwarded to Education, Health and Lands Department of the Government of India for its consideration.

It may be noted that as Major-General Sir Cuthbert Sprawson retires in February next, this will be the last Medical Research Workers' Conference over which he presides.

INDIA'S DRUG CONTROL

A definite step towards the standardisation of drugs in India with possibilities of the tightening of control over the manufacture of spurious drugs is being taken in the establishment of a Biochemical Standardization Laboratory, for which orders have already been issued by the Government of India. states a Press Note issued by the Government of India:

The Laboratory will consist or a Bio-assay sub-section and a Pharmaceutical sub-section, and among its function will be the preparation and maintenance of suitable standards of strength, purity and quality for drugs, and standardization of methods of analysis and test, with regard to climatic and other conditions prevailing in different parts of India. The Laboratory will also act as expert referee in respect of disputed analysis of samples sent by local Governments guide, co-ordinate and correlate the work of provincial laboratories, assay and test chemicals and drugs, and biological products such as serum and vaccines, and organometallic compounds at the request of Central or local Governments of Central or local Governments, and periodically issue bulletins about its progress in various branches of its activities, and supply information to manufacturers and Provincial laboratories as the need may be.

The Laboratory will, to commence with, be located at the All-India Institute of Hygiene and Public Health, Calcutta, and Lt.-Col. R. N. Chopra, C.I.E., I.M.S., Director, School of Tropical Medicine, Calcutta, will be responsible for its organization and direction in the early stages. The reason why Calcutta has been selected as the site for the Laboratory is that in Calcutta the Laboratory will have the advantage of housing accommodation in the All-India Institute of Hygiene and Public Health besides access to the laboratories of the latter. Further, in Calcutta, it will have the additional advantage of the assistance and direction of Lt.-Col. Chopra's great pharmacological knowledge and experience.

It may be recalled that in March, 1927, a resolution was adopted by the Council of State recommending that local Governments should be urged to take steps to control the indiscriminate use of medical drugs and for the standardization of the preparation and for the sale of such drugs. Accordingly, in consultation with the local Governments, a Committee was appointed, presided over by Lt.-Col. Chopra, to explore and define the problem of drug control and to make recommendations. The recommendations of this Committee were considered in consultation with the Local Governments, and action is now being taken to implement them.

It may be noted that the control of drugs is primarily a matter of provincial concern, and under the new Constitution will be even more so. Central legislation or any other action taken by the Central Government alone cannot in the circumstances suffice to meet the problems disclosed. Though adequate action could not be taken so long because of the existing financial stringency, in view of the increasing gravity of the problem and the interest it has evoked from representative commercial and medical organizations, as well as from the public, the Laboratory is being established as a first step towards dealing with this problem and assisting Local Governments to make their own preparations. The Laboratory will evolve definite norms or standards, but with its establishment, it is hoped that there will be the beginning of control over the manufacture of spurious drugs to be implemented by suitable provincial action for the examination

of drugs, patent medicines, etc., the norm or standards set up by the Central Laboratory providing the provinces with a basis on which adequate steps can be taken to enforce local laws against adulteration.

PAID SECRETARY FOR INDIAN MEDICAL COUNCIL

It is understood that the Indian Medical Council has decided to advertise for the post of Secretary at a monthly salary of Rs. 1,200 to Rs. 1,500 for a period of five years.

The selection will be made by the Executive Committee subject to confirmation by the Council from among medical men of ten years' standing with experience of medical education.

The appointment will be settled by the Council at the meeting next February but the new Secretary will take charge on November 1.

The Council has granted recognition to Calcutta Medical degrees but in the case of the Andhra University, it was decided to wait for the report of inspection in January.

According to another decision, the Council office will not move to Simla hereafter.

SHROFF MEMORIAL GOLD MEDAL

The following subject has been selected by the Bombay Medical Union for competitive thesis for the above Prize for 1937:—

"The dietetic deficiencies and excesses at present prevalent in different parts of India, and their effects on health, with suggestions for improvement of such dietaries."

The award will be in the form of a Gold Medal called the Dr. B. S. Shroff Memorial Gold Medal of the Bombay Medical Union.

The competitor must be (i) a duly qualified member of the Medical Profession holding a degree or degrees and diplomas from Indian and other Universities created by statute, or (ii) a duly qualified member of the Medical Profession holding the diploma of Membership of College of Physicians and Surgeons of Bombay.

The thesis must be sent in six typed copies so as to reach the Honorary Secretaries Bombay Medical Union, on or before the 15th March 1937.

The thesis should be designated by a motto instead of the writer's name and should be accompanied by sealed cover containing the name of the writer and his Post-Office Address.

The name of the Prize, the year of competition, the subject of the thesis, and the writer's motto should be superscribed on the cover.

No study or essay that has been published in the medical press or elsewhere will be considered eligible for the Prize, and no contribution offered in one year will be accepted in any subsequent year unless it includes evidence of further work.

The accepted thesis shall be the property of the Bombay Medical Union.

All other theses shall be returned if not accepted provided the returned postage expenses are paid in advance by the writer.

In the award of the Prize to the successful candidate, the decision of the Committee, shall be final.

COMPULSORY RETIREMENT OF PHYSICIANS AT AGE OF 65

The lower house of the French congress, the "Chambre des deputes", corresponds to the House of Representatives in the United States. At the June 5 session of the Chambre des deputes, a bill was introduced by Mr. Pomaret which was entitled "Proposition of Law tending to the immediate and steady employment of the youth of France." An examination of the bill reveals that it is not as innocent in its objectives as would appear from the title. It is directed at all members of the liberal professions, including physicians, so that diplomas will be rendered null and void whenever the holder has reached the age of 65 years, thus leaving room at the top for the intellectual youths who cannot secure a place even at the bottom of the ladder at the present time in France. Article 3 of the proposed law states that "no one can practice, even without pay, after the age of 65 years, as a lawyer, physician, veterinary, dentist, druggist, architect,

surveyor, engineer, accountant, or as an executive in any commercial pursuit." No reference is made to the compulsory retirement at the age of 65 of a politician or those in the diplomatic service. This law should go into effect from January 1,1939, it being understood that no pension can be given by the government to compensate those who are forced to retire.

In an editorial in the July 19, Concours medical Noir states that although this proposed law had been spoken of, it seemed so unusual that it appeared to have germinated in the brain of some dreamer and need not be taken seriously. Also, the bill had been introduced and hence called for vigilance on the part of organized medicine. A year ago the Medical Student's Association of France denounced such a proposition because it felt the injustice of compelling every physician to retire without a pension at 65, when the majority were unable to do so. Nine tenths of the intellectual youth here are sons or daughters of those at whom the law is directed. These young people know that in the majority of cases their parents are obliged to work beyond the age of 65 in order to pay for the education of the children until the latter are self supporting. Unless the parents have inherited money, relatively few, and this is especially true of physicians, have accumulated sufficient funds to live on the rest of their lives at the age of 65. Why those who occupy municipal, state or governmental positions should be exempted is not clear. Many physicians at the age of 65 have reached the acme of their career. Their experience, acquired during many years of study and practical application of their knowledge, is too valuable to the community to be thus thrown into the discard. The proposed law has aroused such antagonism on the part not only of members of the professions enumerated but of the people at large that there is little likelihood of its ever coming to a vote. The younger intellectuals are as opposed to it as those whom it is supposed to push aside to make room for them.—(*Journ. A. M. A.*, September 19, 1936, page 977).

INTERNATIONAL COUNCIL OF OPHTHALMOLOGY

According to the decision of the XIV International Congress held in Madrid in April, 1933, the next Congress will be held in Cairo, Egypt.

In conformity with the decision of the International Council of Ophthalmology, London, April, 1935, the meetings will be held from 8 to 14 December, 1937.

The two official subjects of the Congress will be:—

1.—Arterial Hypertension of the Retina:
General Introducers.—H. Wagener and Keith.
Reporters.—Balliart—Clinical and Physiological Aspects.
Koyanagi—Pathological and Anatomical Aspects.

2.—Endocrinology and the Eye:
General Introducer.—Snapper.
Reporters.—Von Szily, Von Imre, Jeandelize, Lacarrere and Lo Cascio.

The papers should refer perferably to subjects related to the official themes. Only a certain number of papers may deal with independent subjects, provided that the International Council will pass them previously by reason of their originality and interest. The International Council has taken this decision in order to avoid the considerable accumulation of papers which in past Congresses has made efficacious debating extremely difficult. It has been thought preferable that the number of these should be reduced so that they can be discussed with the necessary fullness.

The Local Organising Committee requests the colleagues to kindly send three typewritten copies of the paper intended for reading together with a resume of not more than 500 words to Dr. Marx, Secretary of the International Council, not later than April 1st, 1937.

Number and size of lantern slides, if any, should be stated, and whether an epidiascope or microscopes (and, if so, how many) are required for the lecture.

On the occasion of the fifteenth International Ophthalmological Congress a third edition of the Directory will appear. This Directory will contain data concerning the following subjects: —

1. Names (alphabetically arranged) and addresses of all oculists in the world.

2. Titles and volumes of all periodicals which deal with any branch of ophthalmology.

3. Statement of all ophthalmological associations.

4. Hospitals for eye patients.

5. Establishments for institutions for the blind, sight-saving classes, etc.

6. Statistics regarding blindness.

The Secretary of the International Ophthalmological Council (Dr. E. Marx, Oostzeedijk 316, Rotterdam, Holland) would be glad to learn whether there are still other subjects of general interest for oculists which might be included in the Directory.

Two exhibitions will be arranged:—

1.—*A Scientific Exhibition*, comprising Anatomical and Pathological Specimens or Slides, Photographs, Radiographs, etc. Members wishing to partake will please communicate with the Secretary General stating the object to be exhibited, its size, etc.

2.—*A Commercial Exhibition*, comprising Instruments, Apparatus, Drugs, Printed matters, etc.

Inscription for membership to the Congress open for every medical man, and those who desire, will please send the sum of 50 Swiss Francs, to cover the fees for subscription. The fees for ladies and other associate members of the congressists' families are 25 Swiss Francs per person—those can attend receptions, excursions, etc., but are not entitled to attend the Scientific Meetings, nor will they receive a report of the proceedings of the Meetings.

Further details of the Congress Meetings, banquets, trips, etc., will be sent in due time, as well as the abstracts of papers and the identification cards for the reduction of railway and other fares.

A housing committee will take charge, of facilitating the accommodation and lodgings of the members and their families during their stay in Egypt.

The work of the Organising Committee will be greatly facilitated if the members subscribe as early as possible.

ASSOCIATION NOTES

DEORIA MEDICAL ASSOCIATION

Proceeding of the 11th monthly general meeting:

The 11th monthly general meeting of the association was held on 15th September 1936, at the residence of Dr. S. C. Acharya, the Vice-President, the host being in the chair. Most of the members were present. Dr. Pandit, a doctor from Bengal, who happened to come here as a guest of Dr. Acharya, also attended the meeting, on invitation.

The proceedings of the last meeting were read by Dr. Srivastava, the Honorary Secretary and confirmed.

Dr. A. K. Roy then read his paper on Beriberi, defining the disease specially as a form of endemic peripheral neuritis together with a special liability to vagus complication. It was then variously discussed by members and well replied by the speaker.

Major D. R. Ranjit Singh was nominated for Presidentship, and Drs. B. N. Vyas, S. N. Mukherji and Bhupal Singh for Vice-Presidentship of the Indian Medical Association.

The following resolutions of Dr. S. N. Mukherji were then unanimously passed:—

1. Resolved that the monthly general meeting of the Deoria Medical Association should be held as far as practicable on the first Sunday of the month.

2. Resolved that the agenda for a meeting be included in the minutes of the meeting.

3. In view of the fact that the financial year of the I. M. A. closes on the 30th September each year, be it resolved that the financial year of the Deoria Medical Association should be changed to end on 30th September instead of 31st October each year to coincide with that of the I. M. A.

The host was 'At Home' after the meeting.

* * * *

Proceedings of the 1st Annual General Meeting

The 1st Annual General Meeting was held on 4th October, 1936, at 2 p.m. at the residence of Dr. S. L. Vidyarthi, M. O. Kasia Dispensary (22 miles from Deoria). The president was in the chair.

The minutes of the last meeting were read, approved as correct and confirmed.

Dr. Vidyarthi then read his paper on medical treatment of brain injuries, with reference to practical cases treated by him. The paper was variously discussed with the closing remarks from the chair.

Dr. H. N. Bhatt then read important passages from a learned discourse of Dr. Robertson of Dewas State, with his personal remarks, on the diagnosis and treatment of tuberculosis. It was a new method of treatment with carbolic acid as the main medicine. The following formula was advocated:—

R/-	Acid carbolic ...	...	dr. 1
	Glycerine ...	...	dr. 2
	Novocain ...	...	gr. 32
	Aqua dist. ...	...	oz. 8

the injection is given directly into the affected portions of the lung and glands.

Dr. Vidyarthi cited a case of renal asthma and Dr. Mukherji of one having whitish membranous oozing patches around nearly all the external orifices of the body with successful treatment by Neosalvarsan without the history of syphilis.

The Secretary then read the Annual Report.

Last of all there was general election of office-bearers for 1936-37. The following were elected:—

Dr. H. N. Bhatt—President.
Dr. S. C. Acharya—Vice-President.
Dr. S. N. Mukherji—Secretary.
Dr. B. B. Srivastava—Treasurer.
Dr. S. S. Gahlot—Auditor.

S. N. MUKHERJI,
Hony. Secretary.

PUNJAB PROVINCIAL BRANCH

The following is the text of the inaugural address delivered at the Sixth Annual Provincial Conference at Sialkot on the 31st October by Dr. B. J. Sahni, L.R.C.P. & S. (EDIN.), D.P.H.

Ladies and Gentlemen,

Allow me to offer my grateful thanks to you all for the honour you have done me in electing me as President of our Association for the next year, an honour which I feel—I say this in no conventional spirit—I hardly deserve. However, knowing—as I do, that I will have a generous co-operation from you all during my term of office, I bow to your decision and accept the heavy responsibilities to which your kindness has called me. Allow me further to express my extreme happiness that I enter upon the duties of my office in the city of Sialkot which, historically important and associated with the illustrious name of Puran Bhagat, has won for itself the unique distinction of being the first city in the whole country in a totally different sphere. Sialkot has achieved in the field of cottage industry what no other town in India can claim. We in this province are proud of Sialkot for its rapid growth as a centre of a western industry. To me Sialkot is a beacon light illuminating the road to industrial enterprise and progress for generations of our youths. There are other and bigger industrial towns in the country, but where do you find another centre which has turned a big industry like the games and sports industry into a most important and valuable cottage industry, where men are men and not mere machines? Where do we find another centre which exports by the ship-load its manufactured goods to Europe, America and Australia instead of being content to send its wealth of raw material abroad?

Coming to our own domain of medicine, I need hardly remind you that, although India is perhaps the richest country as a producer of medicinal herbs and vegetable drugs, these are mostly exported to the West only to be sent back to us in a different form at a price bearing no proportion to that which we received for the original product. If instead of being sent abroad the abundant herbal wealth of the country was worked up even to the intermediate stages of preparation it would give useful and profitable employment to a large number of our young men and, at the same time, save the country lacs of rupees which are now paid for the imported drugs and medicines. Our own responsibility in this direction is great. I beseech you to look seriously into the matter and ask yourself the question: "What have I done to help the Indian Drug Industry How can I help it?" Let me assure you, Ladies and Gentlemen, in this line of drug and medical industry we have a vast virgin field lying at our very door which we can exploit to immense advantage to our country and an equal profit to ourselves. I am not overstating the facts when I say that a few hundreds medically trained men and women could easily be absorbed in managing and supervising the new factories.

While I am speaking of the herbal resources of our country and the desirability of utilizing them for the preparation of all kinds of medicines from them, I may take this opportunity of saying a few words also about the labours of the Drugs Enquiry Committee which met more than five years ago under the presidency of our talented countryman, Col. R. N. Chopra. The Committee was appointed as the result of an unofficial resolution adopted in the Council of State early in 1927. It took the Government of India no less than four years before the Committee was appointed and it is more than five years since the Report of the Committee has been before the public and yet one does not know when it is going to be considered by the Government and action taken on it.

I have neither the time nor the inclination to dwell at length upon the Report of the Committee, interesting and informing as it is, but I cannot resist the temptation of saying a few words about the quinine policy of the Government. Now it may interest you to know that the total value of the drugs and medicines (excluding chemicals and narcotics) imported into India year after year amounts roughly to about two crores of rupees to which the imports of quinine and its salts contribute about quarter of a crore of rupees. According to the Enquiry Committee's Report, there are in India no less than ten crores of untreated sufferers from malaria, while those that are fortunate enough to receive complete or partial treatment number about one twelfth of that figure. These figures tell their own tale. Not to speak of human suffering and national physical deterioration the Report puts the economic loss to India as the result of the sickness and death caused directly by malaria at not less than 26 to 31 million pounds sterling. And yet the consumption of quinine per head in India is only $3\frac{1}{2}$ grains as compared with 16 grains in Italy and 24 grains in Greece. Various estimates have been made of the minimum quantity of quinine which must be available for consumption in India for anything like an effective treatment of the sufferers from malaria. The estimate of the Public Health Commissioner with the Government of India though the lowest, *viz.*, 500,000 lbs. per annum, is sufficiently high to show how hopeless it is to tackle the problem of malaria and its satisfactory treatment by adequate supplies of quinine. The total amount of the drug produced in India amounts to about one seventh of its requiremets as estimated by the Commissioner of Public Health with the Government of India. Roughly speaking the quantities of quinine imported into India amount to a little less than double the indegenous product.

In the course of the evidence placed before the Committee two facts emerged which should receive early and serious attention at the hands of the Government and the medical authorities which their importance deserves. These are:

1. That the cost of production of quinine in India is about Rs. 7/- per lb. while its market price is as high as 350 per cent. of the cost of production.

2. That there would seems to be no good reason why the production of the drug should not be doubled or trebled not only making it unnecessary for India to import an ounce of quinine from abroad but also saving to India the heavy cost of the imported article which she is now called upon to pay.

Further, there is no reason why the sale price of quinine should not be reduced to something

approaching the cost of its production. It is only when a serious and persistent attempt is made to cultivate suitable species of cinchona on a sufficiently large scale and offer the prepared alkaloid at a price approximating the cost of production that the incidence of malaria in the country may be expected to be appreciably affected and the problem of a satisfactory treatment of malaria sufferers to be fairly on the road to solution.

Ladies and Gentlemen, as we all know, the medical profession is passing through a critical period. The number of medical practitioners is increasing from year to year, without a proportionate increase in the work. So far as I can see, no attempt is being made anywhere to expand the sphere of usefulness of the medical practitioners. The prevailing tendency of the fresh graduates is to concentrate in towns. In countries where only one system of medicine is practised, it is considered that a population of 2,000 should suffice to support one doctor in fair comfort consistant with his position in society and his heavy responsibilities as the custodian of the health of his clientele. Here in this country we have a number of systems all in operation, each claiming a share of the work. In these circumstances, a population of 2,000 will not be sufficient to support one doctor. My advice, therefore, to our younger colleagues is to spread themselves out and extend their activities to the rural areas also. This is bound to come about and possibly not in some remote future, but those taking advantage of it early enough will steal a march over the others. There is no less sickness and suffering in the rural areas than what one finds in the towns. The poor villager to-day puts no value on his life, but if there is a qualified doctor within his reach, believe me, he will not be slow to appreciate his services and avail himself of them.

Here I may also mention that if the members of the medical profession were to spread themselves out, they do that all over the world—they will not only do good to themselves and their countrymen, but they may also be invited by the Punjab Health Authorities on payment of a small honorarium to do practical health work as Medical Officers of Health for a specified rural area. It goes without saying that only when trained medical men and women take up this work, will the sanitation of the rural tracts improve. To-day the work of the Punjab Health Department is chiefly of a statistical and administrative character but with the help of hundreds of properly trained young doctors available all over the country, the activities of the Health Department are bound to expand along more practical and, therefore, more directly helpful lines. Who can doubt that when the Health Department is functioning as a practical, healthy and health-giving organisation, the improvement in public health and the saving of human life will be out of all proportion to the money spent by the Government on this work? Incidentally the Government will also have done its duty to the people while helping to give a little of the much-needed relief to a profession which, honourable as it is, is becoming rapidly overcrowded.

I may in passing also refer to another aspect of our profession. There was a time when sufficient medical men were not available and the duties of the entire vaccination work had to be entrusted to an untrained or half-trained staff; but to-day I see no reason why the authorities should not turn a new leaf in this direction and get the work done by qualified medical men and women where they may be available. No where else is a responsible work like vaccination done by unqualified or almost unqualified men as it is in India.

Again, some years back, the Government appointed at Lahore one medical man as Honorary Physician and another as Honorary Surgeon in the outdoor Department of the Mayo Hospital. This was a very healthy move and one thought that the policy of appointing honorary physicians and surgeons to the Mayo Hospital would be soon extended to the other Government and Municipal Hospitals in the province. But for some unknown reason this scheme was buried or, to be more exact, cremated with those two gentlemen. The public no less than the profession has a just cause of grievance in this matter. There appears to be no reason why in every town of the province some qualified practitioners should not be attached to the local official or semi-official hospitals. I am afraid the Government has dealt with us in a very stepmotherly fashion. All the world over it is the independent Medical Profession which guides and controls all medical activities. In Great Britain they control the General Medical Council, manage and run the big hospitals, teach in the great institu-

tions and, in short, it is they whom the Government looks to for advice and guidance in all public health sanitation and general welfare work.

Ladies, and Gentlemen, the Indian Medical Association is the biggest organisation of qualified medical men and women in the country. There can be no manner of doubt that the average medical man is a well-trained, disciplined, educated and cultured person. A big association with its members spread all over the land and occupying an honorable place in the country should wield an immense amount of influence in watching and guiding the health and welfare of our people. It is a matter of no small regret to me as it must also be to many others, that all this potential ability and power for good should not have been utilised by the Government and its advisers and Ministers. Cheap and efficient medical aid and health advice are available in the country in abundance and it was up to the Government to harness it for providing on a large scale, efficient treatment of disease and wholesome advice to the mass of the people on various matters of health and sanitation.

As an instance of the cramped surroundings in the midst of which we here in the Punjab have to live and work, I may be permitted to say a few words about our part in guiding and controlling the medical studies of the University in this province. In all other countries and even in the other provinces the independent medical profession is fully represented on the Medical Faculty of the University, but here in the Punjab the Faculty is manned exclusively by service men. The members of the independent profession counting among them many eminent physicians and surgeons with a long life's experience of the needs and requirements of the people in the matters of their health, habits and sanitation are conspicuous by their absence. Is it not a pity that a large and capable body of men should have no part or lot in determining, guiding and controlling the courses of studies of the coming generations of medical students?

The Medical College has been in existence for well over half a century. Does it not strike you as strange that during all this long period of time it should not have made any contribution to research in any field of medical knowledge. We have beautiful buildings, perfect and expensively equipped rooms and laboratories, but what original work has any one of the departments turned out? None, I do not blame the men, but I do blame the system which by a stroke of the pen elevates a junior member of the Indian Medical Service to the position and dignity of a full fledged professor over the heads of experienced assistants for a life time. Is it any wonder if such a system should spread resentment all round, discourage original research and kill all initiative.

I come now to the question of a Health Insurance Scheme. The Government has so far given little thought to this aspect of health reform inspite of the persistent agitation carried on by the medical profession in the country. The Indian Medical Association has done a good deal of spade work in educating the people regarding the advantages of such a health insurance scheme. In December 1935, a resolution was adopted at the All-India Medical Conference and a sub-committee was appointed to draw up a scheme of health insurance. In England where such a scheme has been in operation now for about 20 years, the advantages from it are fully recognised.

Ladies and Gentlemen, have a place in your heart for the Vaid and Hakim—I mean the qualified Vaid and Hakim and not the quack. There is a big tradition behind these indigenous systems which should command our respect. The modern system of medcine has aften borrowed from the older systems which have grown up in the soil. I say therefore, have a soft corner in your hearts for the system, respect the qualified Hakim or Vaid but shun the charlatan. It is time that the Legislature passed an Act giving a status with a register like ours to the properly qualified Vaid or Hakim. In our campaign for removing the quack, we should carry the qualified Vaid or Hakim with us. It is my firm belief that the time is coming when India will get into her own and when the knowledge that has come to us from the West will merge into the accumulated wisdom and experience of the East to the great good of the people at large.

A word to the newspapers. Every morning when you turn over the pages of your papers, one notices advertisements of preparations to cure all the ills of the world, sexual tonics and cures for venereal diseases. Newspapers are organs to educate the people and give them correct lead in matters

political, social, hygienic. We cannot sufficiently condemn the acceptance of such objectionable stuff as I am referring to for insertion in the advertisement columns of our newspapers.

Not only do we find misleading statements in the advertisement columns, but, perhaps inadvertently, such things sometimes creep into the reading matter too. Year after year a letter appears in one of our leading dailies about certain cure for Asthma by a visit to a particular place where this wonderful remedy is distributed free. And year after year one sees Asthmatic patients who have gone there full of hope and come back no better as regards their disease but financially much the worse.

No one can say that the average medical man in India is any less efficient than his *confere* in England. In fact a large number of Indian doctors who found some difficulty in establishing themselves here have gone and settled down in England and many of them are doing very well indeed. The only thing for which the profession itself is at fault is that we are not so well organized as we might be. Organization and discipline as a body is then our greatest need, as far as we ourselves are concerned. Once we achieve this, the moment we learn to stand together as a compact disciplined and united body, the rest will follow.

In this connection a passing word may also be said about certain inequalities from which we suffer- A most glaring instance is, that a certificate issued by even a registered medical man (registered by a law passed by the Legislature of the country) may have to be countersigned by a medical officer of the Government before it can be accepted. If you pardon me for a personal reference, I may tell you that I can give a certificate in England which will be accepted by all without question but this is more than an Indian with even British qualifications can claim in his own country.

Ladies and Gentlemen, it is now time for me to bring this address to a close. But before I stop, you would perhaps expect me to say a few words about our own association and the serious handicaps which the Punjab Medical Registration Act has imposed upon the medical practitioners. As you know, exactly twenty years ago the Government passed this act, and as a result the Punjab Medical Council came into existence. It was meant to serve the same purpose as the General Medical Council of Great Britain. How far our fond expectations have been fulfilled is a matter of common knowledge. The Act binds us without giving us any privilege or safeguarding our interests in any way. It tells us not to do this, that and the other, but it does not prevent the unqualified man from calling himself a doctor, practising the healing art and advertising himself freely. Not only is a great deal of legitimate work which should have come to the properly qualified man taken away from him but, what is much worse, serious harm is done to the general health of the people at large. It is time the Government realised its responsibility in this direction and did something to discriminate the qualified practitioner from the great mass of quacks who are free to advertise and practise without knowledge of what they claim. Some of the flaming advertisements which disfigure the walls of our streets would not be permitted to be exhibited any where else in the world.

The manufacture and sale of patent medicines in a modern state is regulated by Government. But in this direction too, our Government has shown an amount of apathy which is difficult to explain. The uneducated or half-educated man in the street is easily taken in, by the high sounding advertisements that appear in the papers or on the walls of our streets. The Indian Medical Association too has a responsibility in checking this trade by exposing the hollowness of the claims put forward by patent drug manufacturers.

Ladies and Gentlemen, the Indian Medical Association is a great organisation, the biggest and the most influential of its kind in the country. It is a virile child and judging from its progress in the past I have no doubt whatsoever that the ideal of having every practising man or woman in the country on its rolls is not an idle dream. My request to you who have come from all parts of the province is to go back with the firm resolve to do everything in your power to advance and further the prestige of the Indian Medical Association.

TINNEVELLY DISTRICT MEDICAL ASSOCIATION

The Tinnevelly District Medical Association held its monthly meeting under the presidentship of

Lt.-Col. T. S. Shastry, I.M.S., on Sunday, the 31st October, 1936, at Srivaikuntam. 30 members attended.

The Secretary read the minutes of the last monthly meeting which were passed.

Dr. P. S. Srinivasan, L.M.P., demonstrated a case of (1) Abscess back, (2) Kalazar and read notes of:

1. A case of Abscess back.
2. A case of Kala-azar with parotitis.
3. A case of Kala-azar with sloughing of tonsil.

He also gave a brief survey of the diagnosis and treatment of Kala-azar. The clinical cases demonstrated and the case notes were discussed *in extenso* by the members which revealed Kayalpatnam as the home of Kala-azar in this district, the Muslim women and children suffering most and the purdah system largely contributing to the endemicity.

The President summed up the salient and important features of the cases and brought the meeting to a close after proposing a vote of thanks to Dr. P. Ramalinga Nayanar for the excellent arrangements.

Health Exhibition

Under the auspices of the Association, in connection with its monthly meeting a Health Exhibition was arranged at the Coronation High School, Srivaikuntam.

Lt.-Col. T. S. Shastry, I.M.S., explained the cholera situation and requested M. R. Ry. T. M. Kumarakuruparan Pillai, Vice-President, District Board, Tinnevelly, to open the Exhibition.

The Local Health Inspector explained in Tamil the exhibited posters on the prevention and causation of cholera, tuberculosis, and on flies for the benefit of about 150 school children and the public.

K. Rama Ayyar,
Secretary & Treasurer.

MEDICO-LEGAL

HAS THE PATIENT A RIGHT TO HIS CASE RECORD?

An interesting decision recently handed down by the Supreme Court of Judicature marks another pronouncement on the physician-patient relationship. A male patient had been admitted to a private sanatorium for treatment for an intoxication caused by a hypnotic. The treatment had been successful but the patient decided to institute a personal injury suit against the manufacturer of the drug in question. To strengthen his allegations, he wished to make use of the clinical history of his illness and requested the attending physician to furnish him this record. When the doctor and the sanatorium denied his request the man brought legal action against both, demanding the delivery of the record. The defence contended that the histories of patients are in the nature of an attending physician's private notations, intended solely for his personal use, that such records should never be accessible to a patient and that, furthermore, if the plaintiff wished to use the pharmaceutical concern he could have the members of the sanatorium staff subpenaed as medical witnesses. But the legal duty of professional secrecy, the defence concluded, prohibits the surrender of a case record by a physician.

The medical experts who testified in this case were of the opinion that case records were to be regarded as a physician's personal property and that under no circumstances should a patient be permitted access to them and, further, that a universally recognized principle of professional ethics forbids the physician to furnish a patient full information on the latter's physical condition if such intelligence might upset the patient's mental equilibrium. It must therefore remain within the discretion of the physician whether he wishes to supply a patient with the case history.

On the basis of this expert opinion the Supreme Court dismissed the suit. The decision specifically stated that a patient has no right to demand access to the record of his case if the physician considers the divulgence of the data therein contained contraindicated for psychologic reason. There exists accordingly no legal avenue by which the plaintiff may become acquainted with the etiology and clinical course of his malady. In case action is brought against a pharmaceutical manufacturer, the court itself may impound medical records for its own guidance in the formulation of a judgment; but the relinquishment of a medical record cannot be legally claimed by private persons, and the plaintiffs in the present or in any similar case are to be regarded as such.

—(*J. A. M. A.* September 19, 1936, page 981).

CORRESPONDENCE

[The Editor is not responsible for views expressed in these columns.]

To The Editor,

Journal of the Indian Medical Association.

Sir,

I have read the interesting paper on 'Foreign Bodies in Ear, Nose and Throat' by Dr. K. K. Ghosh, which I commend to the attention of general practitioners. The methods recommended by him so far as they concern extraction of foreign bodies from the external ear passage and anterior nares are not fool proof. There is an easier way of removing foreign bodies belonging to the inanimate group which are snughly impacted in these passages and refuse all attempts to dislodge them either with a hook or bent end of a flexible probe. The sight of even such an innocent looking instrument as a probe frightens the patient, usually a child, and frantic efforts are made by him to resist insertion by the surgeon and these are followed by yet more frantic efforts of the latter and his assistants to pin him down and keep him steady. For a long time I have used thin wire such as is used as a style for hypodermic needles, only the length should be sufficient to permit of its being bent in the middle into a loop leaving enough to be gripped between the forefinger and thumb. The child is not frightened by this unless he has been mishandled previously. After gaining his confidence the looped wire can be pushed in past the obstruction and pulled out with a slight jerk and this often brings the foreign body out. The choice of the wire should receive a little care and it must not be too thin.

Ramkali Chaudhuri Rd.
Benares City,
October 21, 1936.

Yours faithfully,
S. K. Chaudhuri.

BOOK REVIEWS

A Manual of Pharmacology by the late Walter E. Dixon and revised by W. A. M. Smart, published by Edward Arnold & Co., London. Eighth Edition, 1936, Demy Octavo, 483 pages with 79 illustrations.

The appearance of a new edition of Dixon's Pharmacology after an interval of about seven years will be received with a mixed feeling of pleasure and sorrow. It is a pleassure no doubt to see that such a work has not been allowed to die, and the

profession would have been poorer if such a thing did happen. Feeling of sorrow naturally comes to one's mind when one realises that Dixon, who was one of the pioneers of modern pharmacology, is not with us to-day, Nevertheless the work of revision was done by an able hand, and Dr. Smart is to be congratulated for the way in which he has performed the task of editorship. While retaining the original character of the book every effort has been made to bring it uptodate according to the B. P. 1932 and its Addendum. In fact the whole work has been practically rewritten and many new features have been introduced which enhance the value of the book and will make the work more popular both to the students and the practitioners alike.

Dixon's original idea was to deal with the science of pharmacology in such a way as to enable the student to understand the practical application of drugs in the treatment of disease and he dealt with pharmacology as a purely scientific subject based on animal experiments. This no doubt placed pharmacology on a different footing and enabled the student to understand the subject better than mere committal to memory of many disjoined and often unassociated facts. The reviewer however always felt that teaching of pharmacology as a scientific subject detached from Therapeutics and Materia Medica, even though illustrated with demonstration on animals, without at the same time showing the application of that knowledge at the bed side nullifies the very object of teaching pharmacology. Those who have to deal with teaching know that a student or even a practitioner is often unable to write a prescription based on rational principles although he may be able to discuss the effect of drugs on animals with the result that he has recourse to the use of patent or semi-proprietary remedies of questionable value. In fact prescription writing is fast becoming a lost art. It is therefore with pleasure that we note that Dr. Smart has departed from the original plan of Dixon. After describing the pharmacology of each drug or group of drugs he has given the rational application of that knowledge in therapeutics and often illustrated this with suitable prescriptions. Moreover the grouping of drugs according to their action and the classification of each group make it an interesting reading.

The teaching of pharmacology and therapeutics should be co-ordinated and one should not be divorced from the other and the knowledge gained in the class room should be supplemented by its practical application at the bed side.

A new feature of the book is the discussion on the chemical composition and structure of many organic compounds. The classification of hypnotics and antiseptics and disinfectants and the discussion on the autonomic nervous system are quite good and require special mention.

Although the author mentions in the preface that he prefers the use of Metric System in the dosage and remarks that the continued use of the Imperial System is out of date, we observe that the doses in all the prescriptions given in the book are in the Imperial System !

Dixon's book was always held in high esteem by the profession as one of the few standard works on pharmacology and the new edition with the new innovations will be read with pleasure and profit by both the students and practitioners.

B. N. G.

Diseases of the Eye: A manual for the practitioner, by Henry Kirkpatrick, M.B., LT.-COL. I.M.S.(Retired), Late Professor of Ophthalmology Medical College, Madras, Butterworth & Co. (India), Ltd, Second Edition, 1936, Demy Octavo, 164 pages with 36 illustrations.

This is the second edition of the small manual published in 1925 for the general practitioners who are called upon to render first aid to sufferers from eye diseases in remote parts of this country. This volume has undergone several changes, the most important being the addition of a chapter on refraction. Besides there are other additions and alterations which have enhanced the usefulness of the book and it can be safely recommended to the students of medical schools and also to moffusil practitioners who are expected in this country to render serviceable first aid to a large number of people suffering from eye diseases. The moffusil town practitioners will also find this book very helpful in their daily work. There are one or two points to which one might draw attention. In the antisyphilitic treatment there

is no mention of bismuth preparations. Again the reviewer from his personal knowledge in a large number of cases, cannot support the claim of Trypan blue in rendering appreciable help in leprous keratitis or in iridocyclitis. Its usefulness is limited to allay the pain and congestion in the eyes during the reactionary phase. There is no reference to epidemic dropsy glaucoma which is much more common in Bengal than trachoma. The publisher is to be congratulated for the excellent get up of the book.

B. N. B.

The practitioners Library of Medicine and Surgery Vol. X Dermatology and Syphilology Edited by George Blumer and C. Guy Lane, published by D. Appleton Century Co., New York and London, Royal Octavo, 1043 pages with 286 illustrations. Price (For Complete set of 12 volumes and general Index) Rs. 485/- available from Butterworth and Co. (India), Ltd.

This volume of the Practitioners Library of Medicine and Surgery under review deals with Dermatology and Syphilology. The contributors of this volume are persons of wide experience and all are specialists on the subjects. Those who are acquainted with the writings of some of the contributors as for instance Paul A. O'leary, Jesoph Earle Moore, Joseph V. Klander, Harold N. Cole would expect to find this volume a thorough and sane treatise. It covers in one volume not only all the common skin diseases written in lucid style but also includes a brief consideration of many rarer dermatological conditions and at the same time has an excellent chapter on syphilis. The book is profusely illustrated and the illustrations are all of high order and they very faithfully reproduce the clinical conditions.

In this volume the arrangement of the diseases has been greatly simplified. The book is divided into thirteen chapters. Chapter I deals with general considerations of embryology, anatomy and physiology of the skin and has a general survey of the aetiology, symptomatology, pathology, diagnosis and treatment of skin diseases. In this part the value of x-rays, ultra-violet rays, diathermy, carbon dioxide snow, liquid air, as well as various medicaments with many prescriptions and formulas in the treatment of skin diseases in general have been beautifully described. Infections are found all together in chapter II under various subdivisions. Chapter III deals with dermatitis and eczema. Tumours or new growths are all given in chapter IV. In chapter V one would get all forms of dermatosis of toxic origin. In chapter VI psoriasis, lichen plannus, pityriasis rosea, exfoliative dermatitis etc. are grouped together under the heading of erythemato-squamous and papular dermatoses. Chapter VII describes all the congenital abnormalities of the skin. Chapter VIII, X, XI and XII are devoted to diseases of the skin appendages, pigmentary disturbances and trophic diseases with endocrine disturbances and cutaneous neuroses of the skin respectively. One does not usually find the consideration of diseases of the lips and oral mucus membranes in many books of dermatology but in chapter IX of this volume these diseases have been briefly but admirably dealt with. Chapter XIII deals with syphilis and on the whole covers only 196 pages. In this short space the author has presented the subject in an excellent manner and every page reveals the author's determination to get into the subject of business. All the modern aspects of the biology of syphilitic infection and its diagnosis, symptomatology and prognosis have been considered in a beautiful and clear-cut style; but the discussion of the treatment of the disease is omitted here because we are told that this aspect of the subject has been dealt in detail in Vol. VIII of the Practitioner's Library.

At the end of each chapter there is a long list of bibilography and this makes the book more useful. The reviewer has great confidence in recommending the book to the general practitioners and the dermatologists and has no hesitation in saying that it will be a valuable addition to any medical library.

J. M. MODAK.